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INTER-RELATIONSHIPS BETWEEN CURATIVE AND PREVENTIVE MEDICINE.*

W. F. DRAPER, M. D., Richmond, Va.
State Health Commissioner.

In making my initial appearance before the Medical Society of Virginia I am fully aware of the responsibility which rests upon me, for without the sympathetic understanding and the genuine interest and support of the medical profession of the State I shall fail to accomplish more than a small part of the work which devolves upon the office of State Health Commissioner. This responsibility is the greater because of the high ideals and standards established by my illustrious predecessor who held not only the esteem and confidence of his medical colleagues but who occupied a place in their hearts and affections which if ever approached by another can come only after many years of devoted service and close personal association.

I assume naturally that you are interested in knowing the views which I hold regarding relationships between public health and curative medicine and in being advised as to some of the general policies and principles which are to be followed in the administration of the State Department of Health. While thus far I have had but limited opportunity for intimate contact with the medical problems of the State, I am confident from what I already know that they are much the same as in the country as a whole. It is no doubt true that in Virginia as elsewhere the increasing development of organized local health services and the expansion of public health activities have aroused the apprehension of physicians engaged in private practice. Diagnostic and treatment clinics are being held. Physical examinations are being made and free advice is being given in child health centers. Immunization work is being carried on for the prevention of smallpox, diphtheria, and typhoid fever, and various other functions are being performed by health departments which are looked upon askance by many members of the profession.

The present situation has been brought about by the rapid increase in our knowledge of preventive medicine and by the great advances which have been made in public health organization and administration. In addition the public has become better informed regarding the possibilities of health protection and health promotion and is making an insistent demand that it receive the benefits of measures that it is now thoroughly convinced will be to its advantage collectively and individually. The march of events has been so rapid that the relationship between curative medicine and public health has undergone a radical change and there has not yet been time to work out a plan of readjustment whereby the various functions may be assigned to the agencies which should be best qualified to receive them and carry them on with the greatest efficiency and satisfaction. A frank recognition of the problems which confront us and an earnest cooperative effort on the part of public health officials and practicing physicians to determine the limitations, responsibilities and functions of both groups would seem to offer the greatest promise of effecting a satisfactory readjustment.

The several committees of the State Medical Society whose functions are to advise and cooperate with the State Department of Health in special phases of the public health program have been invaluable in the services they have rendered. Your Maternal Welfare Committee and your Child Welfare Committee especially have been consulted at frequent intervals, and their members have given generously of their time and experience in aiding in the development of sound practical policies, and in reviewing our literature dealing with child welfare and maternity work to insure accuracy before publication. The basis of un-

*Read at the sixty-second annual meeing of the Medical Society of Virginia, in Roanoke, October 6-8, 1931.

derstanding which has been reached is most gratifying and encouraging. I earnestly hope that these cooperative relationships may be continued on an increasing scale. I believe there is fair promise that the Medical Society will receive full value for the time and effort expended in reaching a thorough understanding and seeking solutions of problems by these means.

As indicative of some of my own views which might serve as a basis of discussion with the proper committees of the Society I may say that I readily concede that diagnostic and treatment clinics, immunization work, and many of the activities conducted in health centers might very properly be carried on through the instruments of curative medicine rather than by public health departments. But they must and should be carried on from some source, and until a better way is found the health department must continue to do this work. When we come to analyze the matter, present methods may not prove as bad as they are sometimes made to appear. For example, the child health clinics conducted by health departments have received much unfavorable criticism. It is held by some physicians that they take business away from the doctor; that they accept persons who have no right to receive such service; that they engage in unjustifiable treatment of the sick; and that they tend to destroy confidence in the medical profession in the community. The facts, however, do not bear out these statements. A properly conducted health center for well children invariably creates a demand in the community for additional service, and experience has shown that private practice among physicians qualified to render the type of service desired by their clientele has increased markedly in every instance. What has done more, for example, to create a demand for prenatal services from doctors than the educational work conducted in public health clinics, and what influence has been of so great value in opening fields for better practice and for new lines of practice? While I should not be loath to turn the various health clinics over to the practicing physicians when they are prepared to assume the responsibility, I cannot but feel that they are a definite asset to the profession even under existing conditions.

The charge that child health clinics frequently assume responsibility for the treatment of sick patients, however, is one that deserves serious consideration. The treatment of the sick is not a function of a prophylactic and educational clinic and wherever this practice has been followed it has been bitterly resented by physicians who in my opinion are thoroughly justified in the position they have assumed. I can assure you that in Virginia there is a standing order that no county health officer or other public health official who is in any way responsible to the State Department of Health shall administer treatment to the sick or give medical advice. It is sometimes difficult to turn away sick children who are brought to well baby clinics but the principle must be maintained and there are other means for the handling of such cases.

Immunization work as conducted by public health departments has also come in for its share of criticism. The law requires that the health department should do everything within its power to prevent the spread of communicable diseases and the health officer is in duty bound to utilize to the fullest advantage all effective means toward this end. No one who understands will question the desirability of having every child immunized against diphtheria and smallpox, and this is a type of work that may be done both by public health officials and by private physicians. It is to the public health officer's advantage to secure the participation of the private physician to the fullest possible extent. I am confident that any physician could greatly enlarge his practice while rendering a valuable service to his patients and the State if he would instruct the mother soon after the birth of the child to bring it to him at regular intervals for observation, and tell her positively and definitely that he will immunize it against diphtheria at the age of six months, vaccinate it against smallpox at the age of twelve months and protect it against typhoid fever at the age of two years. I believe that patients would welcome such instructions and such service from their physicians. I recall an irate young mother of my acquaintance who conscientiously carried her baby to her physician every month for observation until it was a year old and then had it contract diphtheria from a neighbor's child. When another neighbor told her that her children had been immunized against diphtheria at a child health clinic, the young mother's expressions regarding the physician whom she had employed to safeguard her child and who

had made no reference to diphtheria immunization were what you may well imagine.

Numerous attempts have been made in Virginia and elsewhere to have all immunization work performed by private physicians, but with few exceptions the results have been disappointing. In one Virginia county where an active educational campaign was conducted by the State Department of Health over a period of several months to stimulate physicians and the public alike to see that the children were immunized against diphtheria, exactly eleven immunizations were recorded.

Another experience in one of the demonstrations of the Commonwealth Fund in Fargo, N. D., serves as an example of what has happened many times. In this instance the Commonwealth Fund in accordance with its policy to proceed entirely on the basis of a cooperative agreement with the medical profession arranged that the diphtheria immunizations should be done entirely by the private physicians. The board of health and the demonstration confined themselves to an educational effort to get people to take their children to their physicians, all of whom agreed upon a uniform fee for the service. No appreciable increase in the number of immunizations resulted, and the physicians finally decided that the public interest required that the service be rendered by the board of health without charge which was done apparently to the satisfaction of all concerned. The Director of the Commonwealth Fund states as his conclusion that the offer of free diphtheria immunization by the health department was accepted chiefly by those who would not have gone to the physician anyway, and that the educational work associated with the effort may likely have increased the number who went to private physicians.

Among the constructive suggestions which have recently come to my office from a group of physicians within the State is one which appears worthy of careful consideration. It proposes that the State furnish to the local physicians, free of charge, smallpox, diphtheria and typhoid immunizing material with the understanding that the physicians may charge patients able to pay for the immunization the same rates that they would pay if they came as private patients, and that the physicians give their services free to those who are unable to pay for them. If such a plan were adopted it would be the function of the State Department of Health to aid in informing persons throughout the State as to the desirability of securing the immunizations and advise them as to where and under what conditions they might obtain the service. This plan, if successful, would assure protection to a large proportion of our most susceptible population at a low cost to the public treasury and with reasonable compensation to the doctors for the services rendered. If the suggestion meets with the approval of the Medical Society as a whole we are prepared to submit to the budget committee an estimate for the purchase of the necessary material for use during the next two years, and if authorized we shall do everything within our power to make the plan a success.

From time to time complaints are received from local physicians concerning one phase or another of the immunization program. These are immediately investigated and in most instances a satisfactory understanding is reached. As stated heretofore I believe that careful joint consideration of the questions involved gives promise of developing more satisfactory methods of accomplishing the work and I hope that your efforts and mine along this line will have brought about an improvement in the situation by the time of the next annual meeting.

The code of ethics of the physician is such that it has been difficult for him to make active strides in taking advantage of the opportunities which are open to him in the field of preventive medicine. Sick people seek the physician, but well persons for the most part require at least the stimulus of a suggestion before presenting themselves for examination and advice. The dental profession has handled this matter very well and there has been no question as to the propriety of advising a semi-annual examination of the teeth of every patient. The system of periodic examinations has been adopted by many pediatricians and has met with favorable response on the part of the public. While I am aware of the considerations that have stood in the way of the advocacy by physicians of more preventive work, I cannot but believe that the vast majority of intelligent persons would understand and appreciate an explanation by their physicians of the advantages that would accrue to them from medical examinations at regular stated intervals.

I have never been able to see any good rea-

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son why the discovery of defects in the children of families in which a physician attends the adult members should be left to the school examination, if there happens to be one. Is it not entirely within the right and province of the family physician to advise the parents of the desirability of a medical examination of their children, and the correction of their defects before permanent harm has resulted? And the same should apply to the adult members of families in which the children have been attended by physicians. It would seem not unreasonable that a way should be found to discover their dietary diseases, their hernias, their tuberculosis, and their mental maladjustments before they have progressed to the stage where lasting damage has been done and the patient himself or his relatives complain of them. Certainly the greatest opportunities of the future lie along preventive lines and if private physicians and not some other agency are to render this service, it would seem that they should take advantage of the abundant opportunities for legitimate compensable medical practice which have thus far been so generally overlooked.

It may be as well at this time as at any other to present to you my views regarding State Medicine. I know that there are physicians who believe that somewhere in the background there is a well-defined plan or policy on the part of those who provide the public health leadership in this country whereby every citizen may be furnished medical and surgical care and treatment by physicians who receive their entire pay from the Government—national, state, or local. According to this theory the line of strategy for the introduction of State Medicine is already fully developed and the way is being carefully paved for the inauguration of the new system as soon as a favorable opportunity is presented. If such a plan is in existence, I do not know about it, although I have been identified with public health work for the past twenty years and number among my most intimate friends and advisors many of those who have attained high eminence in the field of public health. If such a plan is in existence, I assure you most emphatically that it is not among those members of the medical profession who are devoting their lives to the advancement of public health. The United States Public Health Reports, which is the weekly publication of the United States Public Health Service, contains in the issue of August 28, 1931, a paper by one of its officers from which I quote the following paragraph:

> "To me State Medicine appears as a miserable makeshift. It is un-American, ultrapaternalistic, and destructive of self-respect in both doctor and patient. It is a failure in Germany, in England, and other European countries. It is, from an American viewpoint, a pauperizing influence, wrong in principle, and doomed to failure in practice if we should be foolish enough to try it. * * * Proper organization of county medical societies will make State Medicine impossible, enable the physician to retain his self-respect, and preserve that priceless, intimate, confidential relation that should exist between physician and patient."

What has been said in the preceding paragraphs should be sufficient to dispel any doubts as to the position of the public health authorities in Virginia and elsewhere in regard to State Medicine. I trust that no ammunition may be wasted in fighting those who are your allies. In my own opinion an invincible front will be presented if we are sufficiently intelligent to work out our problems between ourselves and develop a united program which will sufficiently cover the field.

It is scarcely worthwhile to present a paper of this character unless constructive suggestions can be offered as to how improvements may be brought about. The plan that appeals to me as offering the greatest promise of satisfactory results is that which is being developed in connection with the community hospital and district health department at Farmville. Through the organization of its out-patient department, this hospital, manned by qualified local physicians, is now conducting many of the activities which have elsewhere been carried on by public health departments. These comprise prenatal clinics, well-baby clinics, immunization clinics, laboratory service, and medical clinics which include diagnostic services for tuberculosis, cancer, and heart disease. These are activities which are needed in every community and it seems appropriate and desirable that they should be rendered through the hospital and the local physicians rather than through the health department. Every reputable physician in the community served by the hospital is eligible to become a member of its staff. When desired physicians may send their cases to the hospital for study and diagnosis and have them returned to them for treatment. In other cases, the recognition of the need for hospital care may be promptly

followed by admission of the case to the hospital.

Each of the counties served by the hospital contributes from its treasury funds to be used for services rendered to those of its citizens who are unable to pay the entire cost of their treatment. The ability of persons to pay in whole or in part is determined by a qualified social service worker.

The plan has been in operation only for a comparatively short time but its possibilities for future development are worthy of careful study and consideration by both the medical profession and public health authorities. If the Farmville project proves satisfactory, the extension of the plan will doubtless be considered. The maintenance and operation of the public health clinics will in all probability be recognized eventually as a public responsibility and it would seem only fair and reasonable that the local physicians who serve in such out-patient departments should be compensated for their services. Toward this end a State appropriation in the interest of public health would seem quite justifiable in communities which are unable to meet the entire responsibility.

During my brief connection with the State Department of Health one of the questions which has most frequently come to my attention is that concerning midwives. Briefly stated, my understanding is as follows:

In 1918 the Bureau of Vital Statistics had a list of over 9,000 midwives secured from local registrars and from birth certificates. This was perhaps the largest list of any state and perhaps of any country. Many were women who did not consider themselves professional midwives but who simply attended neighbors, frequently without pay. They were responsible to no one and were under no supervision whatsoever. Being impressed with the large number of puerperal deaths, particularly those from septic infection, the State registrar of Vital Statistics thought that it might be possible, by securing some sort of supervision over midwives, to give them instruction which would make them less dangerous even if no more proficient. It was also his hope that the local registrars might be brought more closely in touch with the midwives of their vicinities.

For these reasons the Legislature of 1918 was requested to place the midwives of the State under the supervision of the State Registrar of Vital Statistics. When this had been done he prepared a booklet, "Help for Midwives," which provided elementary instruction as to cleanliness and the proper method of handling cases. He also required the local registrars to issue them permits signed (in printing) by the State Registrar, and by the local registrar at the time of issuing. The law is worded so as to allow only midwives who have permits to collect fees. The safety rules for the midwife to follow are printed on the back of every permit.

It was never the expectation that the midwives would be greatly improved by the instruction which we endeavored to give them. The only hope was that they would be less dangerous to their patients. Toward this end it has been the rule of the office never to write a letter to a midwife, either a circular or a personal letter, without emphasizing rule Number 3 which forbids midwives to make inside examinations. The hope is to eliminate this source of septic infection. They are, however, taught the rules of cleanliness and asepsis as far as it is possible to teach women of their mentality. An effort is made on all occasions to impress upon midwives that in delayed cases or when any emergency arises they must send for a physician as promptly as possible. The colored women are largely attended by colored midwives who seem to be more docile and obedient than the white women. It seems reasonable to believe that it is largely through this means that the deaths from sepsis of colored women have been reduced by about twenty-five a year. At the same time the number of midwives has been reduced from 9,466 to 4,338 and the reduction is still continuing.

In October, 1922, the Department started work with the 6,000 midwives then in the State. They were untrained, and with few exceptions, ignorant and superstitious. Counties were grouped according to the number of midwives in them, and classes were started where there were 100 or more.

Letters were sent from the State Office calling midwives together at central points in each county in the Black Belt, once a month for eight months. Simple instruction was given in Prenatal Care, Preparation for Confinement, Course of Labor (given by a physician), Postnatal Care, and Care of the Baby. Special emphasis was laid on cleanliness; and also on the importance of having urinalysis done. They were shown how to prepare for a labor

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case, how to sterilize the scissors and dressings for the cord, and many other important points. At the next meeting of the class the midwives were required to demonstrate what they had learned. The colored midwives were encouraged to bring mothers to these meetings, and mothers' classes for white women were held through the Parent-Teachers Association or some other organization.

As the courses were completed in one group of counties, others were taken until the classes have now been held in ninety-two of the 100 counties. With the large territory to be covered, it has seemed impossible for the Director to do more than call the midwives together once a year for a review. They have been eager to learn and many are now giving prenatal care when engaged in time, and are having urinalyses done. As a result of the work, the number of doctors' deliveries has increased and the number delivered by midwives has decreased. A higher type of woman is taking up the work. A more advanced course, known as the Doctors Helpers Institute, is given each summer at the University of Virginia, and at the Virginia State College for Negroes. All new midwives are expected to take this course.

The Rosenwald Foundation several years ago offered to pay one-fourth the salary of negro nurses, and the first one began work in a group of eight counties in September, 1929. The negroes in these counties raised the larger part of the remaining three-fourths of her salary; the State paid the rest.

The Rosenwald Nurse organizes Health Clubs attended by mothers and midwives. The instruction given in these Clubs is founded on the State Correspondence Course for Mothers, and demonstrations are given and required. In the counties supervised by the Rosenwald Nurse, the following rules have been put into effect:

Requirements for New Midwives

(a) Medical examination including Wassermann Test.

(b) Letters from two responsible citizens, one a local physician, testifying as to their good character.

(c) Ability to read.

(d) Completion of State Board of Health course for midwives.

(e) Attendance upon at least ten cases under a doctor's supervision.

(f) Equipment approved by State Board of Health.

It has been the aim and desire of the State Department of Health gradually to eliminate the midwives. Much of the effort is directed at decreasing their work and turning it to the physicians. It appears to be a fact, however, that in a large part of the rural sections of Virginia it is frequently difficult and sometimes impossible for women to secure the services of physicians and that, therefore, the work of a midwife or of some kindly disposed woman is a necessity.

I have been told that the need for midwives is still further emphasized by the fact that physicians have within the last few years increased their charges to a point that many poor women are unable to employ them on such occasions; also that not a few physicians endeavor to avoid this class of work and welcome the presence of midwives who relieve them of it. It is said that in other places, however, the fact that midwives are encroaching upon the practice of the local physicians arouses their resentment and opposition which, at times, takes the form of criticism of the system of registration. The Department does not defend the midwives on account of any supposed increased proficiency and does not advocate employment of them. It simply recognizes them as necessary under present conditions and endeavors to lessen as much as possible the likelihood of their doing harm.

It has been charged that the State Department of Health contents itself with issuing permits to midwives which they may use as evidence to those employing them that they are qualified to practice midwifery and then pays no more attention to the matter. From the foregoing it will be evident that the State actually does do more than merely issue permits. It is true, however, that the permit may be used to convince an ignorant person that the midwife has qualifications that she does not possess.

It has been charged that deaths occurring among persons attended by midwives are charged to physicians and not to midwives and that it is, therefore, made to appear that the maternal mortality is higher among women attended by physicians than among those attended by midwives. It is a fact that midwives endeavor to secure the services of physicians as soon as abnormalities of labor are evident and it is necessarily a fact that a mid-

wife assuming responsibility only for normal labor cases will have fewer deaths than a physician who secures only the abnormal cases among a certain number of deliveries. No tables are published by the Bureau of Vital Statistics showing maternal deaths in the practice of physicians as compared with those among women attended by midwives.

And this is the status of the midwives. There is doubtless much that can be done to improve it. It would seem that the number is still perhaps twice as large as is really necessary. This may well be studied in relation to distribution. It is possible that the present method of issuing permits may be revised so as to remove the features concerning which there is justifiable complaint. I have not yet had time to become sufficiently familiar with the problem to venture an opinion as to just what should be done to make it better. If you have practical constructive suggestions to offer, I assure you they will be most welcome. If you are willing to give me an opportunity to study the question, I pledge you the best efforts of the Department and myself in improving the situation and will hope that real progress may be reported at your next annual meeting.

In the preceding pages I have endeavored to touch upon a few of the problems which confront us as physicians and public health officials, and to indicate in a somewhat general way my attitude toward them. There are many other matters which I have discussed with you individually and which I wish time would permit for discussion collectively. Whether or not you have agreed with the thoughts which I have expressed I hope that I have left no doubt of my earnest desire to cooperate freely and fully in arriving at a wise and satisfactory solution of the difficult problems which face us, most of which are neither of your making nor of mine. This is the most important thing that I can hope to accomplish at this meeting. Old difficulties are bound to be promulgated into the future and new difficulties will arise but if we are able to feel that we can present our problems to each other with confidence, that they will be received and considered in a spirit of helpfulness and cooperation, we shall be successful in working out solutions which will be of great advantage not only to Virginia but will serve as an example that the rest of the country may do well to follow.

UTERINE FIBROMYOMATA—A REVIEW OF 1,145 CASES TREATED BY SURGERY OR RADIUM.*

R. L. PAYNE, M. D., F. A. C. S., Norfolk, Va.
Surgeon to St. Vincent's and Norfolk Protestant Hospitals.

The object of this review has been undertaken by me for what benefit I might personally glean out of my individual experience with uterine fibromyomata. Added to this review has been the detailed study of all those cases treated at St. Vincent's Hospital by other men of the Staff over a ten year period, from 1920 to 1930 inclusive. The total series is 1,145 cases.

In the fall of 1918 I purchased some radium, and during the next twelve months cautiously felt my way with the use of radium in treating fibromyomata. This study, therefore, will cover a series of cases treated surgically by me for the ten years prior to 1920 without radium, and, for comparison therewith, an analysis of all cases of fibromyomata which I treated personally for the ten year period, 1920 to 1930, with surgery or radium. The surgically treated cases prior to 1920 number 128, whereas the cases treated with radium from 1920 to 1930 number 217. During the period from 1920 to 1930 when we were constantly using radium there occurred in my surgical work 284 cases of uterine fibromyomata that were treated surgically without radium, thus making a survey of 412 private cases treated surgically as compared with 217 cases of uterine fibromyomata treated with radium. Out of the 412 private cases treated by surgery alone there were 359 hysterectomies and fifty-three myomectomies.

In this connection, while considering surgery alone for dealing with uterine fibromyomata, it is most enlightening to discover that during the period of 1920 to 1930 in 217 cases treated by radium there were sixteen cases that had radical surgery following treatment with radium. Some of these cases coming to surgery following treatment with radium cannot be ascribed to improper selection of cases for radium for, whereas the tumors were sufficiently large to require surgery, yet the condition of the patient was such that surgery could not be undertaken and radium was employed as a hemostatic measure to check bleeding and permit a general improvement which later would justify the necessary surgery, as

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indicated by the size and other factors involved in the problem. Again, other cases having surgery following radium treatment came to operation not because radium would not probably have been sufficient in the problem, but because, after one radium treatment, the symptoms were not relieved and radium, being a new and untried agent in the eyes of the laity, tempted the patient to insist upon a "once and for all" cure by surgery, rather than to have a second or more treatments with radium and in the mean time remain in doubt as to the outcome. The remaining cases coming to surgery after radium were undoubtedly the result of improper selection of cases for radium treatment, since these operative cases all occurred during the first two or three years of our radium work when we were building up experience and ability to select cases properly for radium.

Out of a study of the total 629 series of my own cases treated by both surgery and radium, I am fairly well convinced that properly executed surgery is just as efficient in relieving the patient as the treatment of these problems by radium, but we have always to consider other factors than merely the relief of symptoms by operation or radium, and this immediately brings up the question of mortality and morbidity after surgery and after radium. In the 412 major operations personally done by me without previous radium treatment, there were eight deaths, or a mortality of 1.9 per cent, whereas in the total series of my cases treated by radium or subsequently by operation after radium there was no mortality. Subtracting all of our personally treated cases from the total 1,145 cases treated in St. Vincent's hospital from 1920 to 1930, there were left 516 cases handled by some forty other men operating in St. Vincent's hospital. Of this number there were sixty-four cases treated by my confreres with radium. This leaves 452 cases handled surgically by approximately forty different surgeons, in which there were fourteen deaths or a mortality rate of 3.09 per cent. There was no mortality in the cases treated by my colleagues with radium. Keene and Kimbrough, in a series of 202 cases treated surgically, reported a mortality rate of 2.15 per cent, while in fifty-two cases treated by radium they reported no mortality, and a satisfactory result in 93.7 per cent. Linton, Marks and Smith reported a series of 250 cases treated by radium in which 93.3 per cent were cured, with a recurrence of symptoms in 6.7 per cent.

It is readily noted from my series of operative cases that the per cent of myomectomies was comparatively low, and from a study of the entire series I am practically convinced that, except in some very selected cases, hysterectomy, though radical, is, in the final analysis, the best measure for the individual problem. My reason for this attitude is that myomectomy may be limited to one, two or three isolated tumors and does not effect the tendency which is usually present for a general fibromyopathy so commonly found in these uteri. Again, bleeding, which is usually the principal symptom associated with these tumors, is frequently not relieved by myomectomy and this often demands additional treatment either by surgery or radium. Finally, a study of my cases and the report of some other clinics would indicate that the mortality rate and post-operative complications are greater after myomectomy than after hysterectomy. It is pertinent in discussing myomectomy to touch upon the problem of pregnancy after myomectomy, for this is the principal reason or excuse for the operation. There is no question but that, in the study of my own cases as well as those reported by Tracy, Masson and other clinics, pregnancy occurs more frequently after myomectomy than after radium. However, as Linton remarks, the case against radium with regards to pregnancy is not a one-sided or closed controversy for, when we consider the rather universal good effect of radium as against the fact that without radium there would arise the necessity for major operation often to be undertaken on patients who are in a serious condition, then the common sense judgment of the surgeon must come to the front.

In our own series of young women below the age of thirty-eight treated by radium there have occurred six pregnancies in which three aborted and three gave birth to normal living babies. In 209 cases Linton, Marks and Smith report that, after considering the age of the patient, the marital condition, the history of repeated abortions, the history of previous fertility and sterility and a careful survey of the general health, it was considered that thirty of the 209 cases were potential child bearers at the time of radium treatment.

Of these, thirteen had twenty pregnancies, of which twelve were lost by abortion, premature birth or death at the time of birth, whereas eight had normal living babies from one to eleven years of age at the time of their report. Dr. Crile gave quite a jolt to the radium enthusiasts in 1924 when he said that radium and X-ray should not be used during the child-bearing age except for cancer of the cervix, his argument being that surgery can be made to relieve any pathological condition in the pelvis and still preserve ovarian function. The literature is full of contradictions to this teaching for many radiologists have proven the preservation of the conceptive powers of adnexa exposed to radiation.

Indications for Surgery

1. All large tumors filling up the lower abdomen with the subserous type predominating, as these are unfavorable for radium treatment because radiation varies as the square of the distance, and, further, in most of these very large multiple tumors there is a predomination of fibrous tissue, and where this is present radium offers very little in the way of favorable retrogression.

2. All tumors complicated by malignancy of the fundus or cervix.

3. All tumors of such type as to interfere with the function of the bladder and rectum.

4. All tumors associated with pain.

5. All tumors associated with inflammatory lesions in the fallopian tubes, acute or chronic.

6. All tumors associated with cysts of the ovaries.

7. All pedunculated tumors, whether subserous or submucous.

8. All degenerating tumors, such as necrosis, calcification, red degeneration or gangrene after torsion of the pedicle.

9. In the absence of other causes, all tumors having scanty bleeding yet showing a low hemoglobin, thus indicating degeneration, are unfit for radium therapy and, therefore, fall under the indications for transfusions and surgery.

Many authorities indicate that surgery should always be undertaken with the presence of fibroid tumors in women during the child-bearing age when children are desired, but I have purposely left this out of my indications, for this is always a problem that must be covered by the dictates of sound surgical judgment and in my opinion cannot be considered as a rule to be invariably followed.

Indications for Radium

In the selection of cases for radium the contra-indications for radium must be constantly kept in mind, and these contra-indications are well covered in the above list of indications for surgery. With these indications for surgery ruled out by a careful evaluation of the problem, we may then summarize the indications for radium as follows:

1. Benign uterine hemorrhage, either menorrhagia or metrorrhagia of obscure or indeterminate origin.

2. Fibromyopathic enlargement of the uterus, producing symptoms.

3. Polypoid endometritis due to circulatory disturbances from overgrowth of fibrous and muscular structures in the uterus. In young women under thirty-eight, radium should only be used after one or two curettages have failed, whereas, in women beyond thirty-eight, diagnostic curettage and a full radium treatment is appropriate.

4. All tumors seven inches in diameter or less.

5. As a temporary hemostatic measure in large fibroids without infection when surgery is indicated but not advisable on account of the extremely poor condition of the patient due to associated disease, marked anemia, obesity and circulatory disturbances.

6. For continued bleeding after myomectomy.

7. For all benign bleeding cases at the menopause or older.

8. As a second choice method for young or old refusing operation.

The question of age incidence of suitable cases for radium treatment in the 217 cases I personally treated shows in this survey that there were only sixteen women under the age of thirty, and, in these sixteen cases, four, or 25 per cent, required two or more additional treatments. The dosage given in this group never exceeded 300 mg. hours except in two instances where 600 mg. hours was used at the third treatment. Between the ages of thirty and forty there occurred sixty-one cases, and only five of these, or 8.19 per cent, required additional treatment. The average initial dosage in this group was 600 mg. hours, and the five who had a second treatment were all given

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1,200 mg. hours. The number of cases ranging from forty to sixty-seven years of age was 140, and six of these, or 4.28 per cent, required additional dosage. In the whole of the 217 cases this survey shows there were only fifteen of the entire group that required more than one treatment. Dr. Jeff Miller says 95 per cent of all fibroid cases properly handled by radium do not need repeated dosage. Our proportion of cases requiring repeated doses of radium is a little higher than Dr. Miller's experience.

In the total of 217 cases treated by radium there occurred only three cases of carcinoma, representing 1.4 per cent. The diagnosis of these cases was confirmed by exploratory operation, and radium was merely a palliative measure. It is interesting to note that the percentage of secondary radium dosage is high est in the youngest group and lowest in the oldest group of cases. This is due, in my opinion, to the caution exercised relative to dosage in the young woman and the boldness with which full doses were given in all cases above forty years of age.

Aside from gross technical errors in the application of radium, the greatest danger attendant upon the use of radium for the treatment of fibromyomata lies in the pitfall of associated adnexal disease. In this review, 516 consecutive operative charts were reviewed to determine the incidence of associated adnexal disease. One hundred and sixty-four cases, representing 31.7 per cent showed the presence of associated tubo-ovarian pathology with the fibromyomata. Wood states, in review of a series from St. Luke's Hospital, that associated inflammatory disease occurred in 28 per cent of his cases. Neill, in a similar review, puts the incidence at 25 per cent. The high prevalence of fibroids among negro women of the South probably accounts for the higher percentage of associated inflammatory disease in my series. It is extremely dangerous to treat fibroids associated with adnexal disease by radium, for exacerbation of the inflammatory process is very common. It is often difficult in a case of multiple fibroids to determine the presence of associated adnexal pathology; therefore, the importance of a most careful history before radium is used. Bonnet and others have reported serious peritonitis following this mistake. We did not have any such complication in our 217 radium cases, due undoubtedly to the fact that Dr. Howard Kelly called attention to this danger at the time we first began the use of radium. Undoubtedly we were lucky, never-the-less this is a pitfall of radium therapy that could readily catch the most careful diagnostician.

Results of Radium Treatment

In the 217 radium cases there followed, after radium treatment on sixteen patients, the operation of hysterectomy. In reviewing these cases, for reasons noted above, I cannot conclude, after the most critical consideration of the problem, that more than eight of them should be considered as radium failures, and this would indicate that the satisfactory results after radium in my series was at least 96 per cent. I believe most radiologists think that the effect of radium on the uterus is secondary to its action on the ovaries, but we must always remember that ovarian hyperactivity is often the cause of fibromyopathic hyperplasia. Undoubtedly the radium affects both the ovary and the tumor, for big tumors rarely diminish in size without complete cessation of menstruation, whereas, in many of the smaller fibromyomata, the symptoms of bleeding and tumor have been controlled by small repeated doses without seriously disturbing the ovarian function. Fifteen of the 217 cases had two or more treatments with radium, thus leaving 202 cases whose symptoms were relieved completely by one radium treatment. This is a highly favorable response, and is partly due to our good fortune in the selection of the cases together with the estimation of the proper dosage. In line with this thought, I am prompted to repeat that, out of a total of 629 cases of fibromyomata in my private series, 412 were selected for surgery and 217 for radium, a ratio of about two to one in favor of surgery.

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CANCER OF THE STOMACH.*

CARRINGTON WILLIAMS, M. D., F. A. C. S., Richmond, Va.
Richmond, Va.

From the Department of Surgery, McGuire Clinic.

Aside from the specific causes of malignant disease, the immediate problem in carcinoma of the stomach is most involved in the diagnosis of the disease from the earliest symptoms and the treatment of possible benign lesions which may become malignant. There are, however, certain points in the etiology and pathology that have such a direct bearing on these more important phases that it is necessary to discuss them briefly. Leaving out these general causes of cancer which we must admit are now almost entirely unknown, the only specific lesions which may develop into malignant disease are benign tumors and benign ulcers. The benign tumors are so rare and when diagnosed the treatment is so well established that we can dismiss them. The benign ulcer, however, is not particularly rare and the treatment is so much a matter of debate, that it is important to discuss it as a possible precancerous lesion. McCarty of the Mayo Clinic believes that 70 per cent of cancers of the stomach arise on benign ulcers This perhaps is an extreme view, but so also are those opinions that no cancer of the stomach arises from a benign ulcer. It seems quite conservative to agree with Moynihan that about 25 per cent of all cases of cancer of the stomach arise on benign ulcers. It is certainly generally agreed that irritating lesions on epithelial surfaces, particularly ulcerative lesions, result not infrequently in cancer. It seems logical to suppose the same is true for the stomach when we so readily admit it for the lip, tongue, cervix uteri, and leg.

The location and character of the growth influence very greatly the symptoms and diagnosis as well as treatment. Margaret Warwick has published a very complete study of a series of late cases coming to autopsy. She found the location as follows:

Pylorus	42 per cent
Wall	37 per cent
Cardia	11 per cent
Diffuse	10 per cent

About half of the growths were of the ulcerative type, the other half papillomatous, cauliflower-like, or diffuse. McCarty says that an ulcer more than 2.5 cm. in diameter is malignant, and I think this would be pretty generally accepted, but an ulcer much smaller may be malignant. From the primary growth, of course, the disease spreads first to the regional lymph nodes and liver, and later to the peritoneum, omentum, and lungs.

The outlook for a patient with carcinoma of the stomach today is very bad. I have recently studied a series of cases at the McGuire Clinic, and as our experience is in line with larger series, I will quote from it. The cases were about evenly divided into four groups; the first, those which were obviously inoperable and not explored: the second, those which were explored but such extensive metastases found that no operative relief was possible; the third, those whose growth was irremovable but gastroenterostomy was done for relief of obstruction; and the fourth, those that were resectable and a surgical cure attempted. To have to admit that three out of four cases are hopeless is a challenge to us to improve the situation. This is not easy, because the stomach can stand a lot of punishment before it complains, and 20 per cent of the growths are located in the cardia or are diffuse and therefore give symptoms particularly late. In order to improve this situation, the old picture of carcinoma of the stomach presenting the anaemic, emaciated, vomiting patient with a mass in the epigastrium must be forgotten and in its place the thought of carcinoma must come with relatively minor complaints. In our cases 10 per cent gave a history of long continued

*Read before the Richmond Academy of Medicine, November 10, 1931.

trouble (two years or more). The others averaged only eight months from the first symptom. Prompt action is therefore necessary; we cannot long watch the progress with safety. The proportion of male to female was two to one; the average age was fifty-six years. All of them had lost weight (ten to seventy pounds); most of them were anaemic (hemoglobin 30 to 95 per cent, average 65 per cent); two out of three had nausea or vomiting; one in three had blood in stool or vomitus; one in three had free hydrochloric acid present in the stomach usually low but occasionally within the normal limits; half of them had palpable masses; and half of them had metastases. Some of these people had neglected themselves, others had been treated for months by their physicians without consultation, some had puzzled eminent diagnosticians, and some had even been missed by competent X-ray men.

A very important fact brought out in this series is that nine out of ten of them give a relatively short history, they are not chronic complainers but are people who are accustomed to good health, and therefore their visit to the physician should be taken seriously. We must be impressed by the first symptoms that these people have and on that basis suspect carcinoma of the stomach and have them examined by the roentgenologist.

The first symptom in 51 per cent of our cases was epigastric pain. This pain was very variable in character, frequently it was a dull gnawing sensation, in others it was described as sharp, or aching, or burning.

In 41 per cent the first symptom was indigestion and this was described as loss of appetite, or gas after eating, or waterbrash, or sour stomach.

In 8 per cent the complaint was weakness without reference to the stomach.

It is only by prompt action on the part of the physician in the face of such vague symptoms, particularly when presented by elderly patients who previously had been well, that an early diagnosis will be made. The positive diagnosis, of course, can best be made by X-ray examination of the stomach. The diagnosis is usually quite evident, but it may be difficult at times to defferentiate cancer from a benign tumor, benign ulcer, or syphilis of the stomach. Both benign tumors and syphilis of the stomach are very rare. The former should be explored surgically so the problem is not important. The latter is more difficult. The positive Wassermann reaction is suggestive and the Roentgen picture slightly different, but at times the problem is hard to decide. The test of antileutic treatment should be tried in doubtful cases, but if the disease is malignant we are losing valuable time. I believe, therefore, that after a few weeks of treatment and a failure to obtain marked improvement, the patient should be operated upon. Even though the mass is luetic and is resected, no great harm has been done, because about half of these people develop stenosis of the pylorus which requires surgical relief.

The treatment of cancer of the stomach is surgical removal of the growth with reconstruction of the stomach; the technical details of this have no place in this discussion. We are often able to relieve the obstruction by a gastroenterostomy and add to the life and comfort of the unfortunate patient when it is impossible to remove the growth. Not infrequently a large part of the mass and the enlarged lymph nodes are due to secondary inflammation, and this should be remembered by the surgeon in deciding the operability of the lesion.

So much for the late cases. If we get them earlier the differentiation of benign and malignant lesion is more of a problem. Many internists believe that all ulcers of the stomach should be treated medically. I am willing to agree with them in this so far as all ulcers of smaller size than 2.5 cm. in diameter are concerned; larger than that the disease is malignant and should be resected promptly. I agree to this, however, with the provision that the ulcer be watched very closely and checked by repeated X-ray examination, and if it grows larger or shows no indication of healing in three or four weeks, it should be referred to the surgeon for exploration.

The decision for and against operation on benign ulcers of the stomach should be influenced by the mortality rate. The cases resected in our series had an operative mortality of 13 per cent, but they were late cases of cancer usually in patients greatly debilitated. For benign lesions and early carcinoma the mortality should not be more than 2 to 3 per cent. Against this mortality rate for benign lesions we have the possibility of the lesion being or becoming malignant, the possibility of the ulcer perforating, and the probability of a cure after failure of medical treatment.

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SUMMARY

It is my belief that about 25 per cent of gastric carcinomata arise on preexisting benign ulcers.

The usual first symptoms of cancer of the stomach are epigastric pain, vague indigestion, and weakness occurring in elderly people accustomed to good health.

The diagnosis of cancer of the stomach in the early stages must be made by X-ray examination and patients should be referred for X-ray on suspicion by the clinician.

Benign ulcers of the stomach when treated medically should be observed closely and if no improvement is obtained in three or four weeks, they should be referred to the surgeon for operation.

The surgical mortality rate for benign and early malignant lesions (2 to 3 per cent) is lower than the medical mortality rate from cancer present or later developing and from perforation of ulcers.

1000 *West Grace Street.*

THE RELATION OF INFECTION IN EARLY LIFE TO SUBSEQUENT MENTAL DISORDER.*

BUCKNER M. RANDOLPH, M. D., Charlottesville, Va.

It may seem presumptuous for an ordinary physician to venture into the discussion of mental disease. Not a few of us have watched the development of the behavioristic school with serious doubts as to its soundness. My present purpose, however, is not to engage in controversy, but rather to maintain that there may be factors in the etiology of inadequate personality other than sexual impulses and repressed infantile impressions. I quote one sentence, purely for the purpose of illustrating the type of teaching referred to above:

"In stammering, as in all narcisistic neuroses, a vulnerable point must be found in the narcisistic shell of the personality, and this vulnerable point in stammerers is the oral libido." (Coriat, *Jour. A. M. A.*, 1931, No. 25, p. 2149).

Here is an assertion made as positively as though it were a statement of a demonstrated scientific fact. In reality, it is a statement of an opinion, based on hypothesis. However valuable hypotheses may be, they are not demonstrated facts. This truth should always be borne in mind. Even the atomic theory of matter, on which the chemical progress of more than a hundred years has been based, is no longer accepted in principle by the scientific world. The Ehrlich side chain theory of immunity has been an instrument of great advances in the prevention and treatment of infectious diseases, but there are today few thoughtful biologists who consider it a final statement of the principles involved in the mechanism of immunity. In like manner, whatever merit the current theories as to the etiology of mental disease may possess, actual knowledge thereof is incomplete, and the subject is still one for further inquiry.

It seems appropriate at this point to refresh our memories on certain ancient conceptions of the genesis of mental and other diseases.

The humoral theory of disease comes down to us from the time of Hippocrates, and obtained credit till comparatively recent times. According to this theory, the human body contained four basic fluids, or humors: blood, generated by the heart; phlegm (or mucus), secreted by the brain; yellow bile by the liver; and black bile, by the spleen. Disease was believed to arise from disorder in the quantity, quality, or distribution of one or more of these humors. Furthermore, a particular person was believed to have a constitutional predominance of a particular humor, which determined his temperament, and indicated the types of disease to which he was especially liable. The names of these temperaments are preserved in the current language of the present time. We have the adjectives, *sanguine*, (*sanguis*, blood, Lat.); *phlegmatic*, (phlegma, mucus. Gr.); *choleric*, (chole, bile, Gr.); *melancholic*, (melan, black, and *chole*, bile, Gr.). In addition, they recognized the sexual factor in a group of psychic disturbances by giving it the name *hysteria*, (hysteron, womb, Gr.).

The ancient students of medicine thus recognized a fact that merits more consideration than it receives today, namely, that the symptoms of mental disorders are only modifications or perversions of phenomena that are common to all humanity. We all have periods of elation and depression; of misjudging the motives and conduct of others; of transient impulse to violent conduct under provocation. It takes but a small amount of the ethyl radicle to produce in normal individuals mania, or stupor, or both. The illusion of the desert mirage occurs to any one, the conditions being favor-

*Read before the sixty-second annual meeting of the Medical Society of Virginia, at Roanoke, October 6-8, 1931.

able. The difference between such manifestations in the sane and the insane is not in kind, but in degree. In the former they are slight, transient, and controllable; in the latter they are prominent, permanent, progressive, and uncontrollable. In the former they disappear with the cessation of recognized causative factors; in the later, the causative factors being unknown, or irremediable, the phenomena persist. The situation is analogous to what we observe with kidneys:—in an acute infection, like pneumonia, we find diminished function, with albumen and casts, which disappear, as the pneumonia subsides; while in Bright's disease the same findings are permanent, progressive, fatal.

The humoral theory was the earliest effort to escape from the primitive behavioristic concept that the insane person was possessed of an evil spirit, or was bewitched, or was a victim of the anger of the gods. It is not impossible that a humoral concept, brought up to date, may again get a serious hearing in scientific discussion. Chemical pathology is, as yet, in the embryo stage. The future aim of science must be to interpret the phenomena of life, both normal and abnormal, in terms of the physico-chemical reactions that are associated with them. At the 1931 session of the Section on Nervous and Mental Diseases of the American Medical Association, we find the chairman's address bearing the title, "Physico-chemical Factors in Mental Disorders," (Freeman, W. F., *Jour. A. M. A.*, Aug. 1, 1931), which shows that psycho-chemistry is already born.

As medical science has progressed along other lines, a number of pathological states, formerly regarded as lying exclusively within the psychiatric domain, have been rescued from such a classification, and placed under a materialistic pathology. Paretic dementia has become a variety of neuro-syphilis. A large group of morons and character defectives have proved to be cases of congenital syphilis. Cretinism is now thyroid deficiency. The dementia of pellagra is a food deficiency. Epilepsy is regarded as the result of metabolic imbalance, while a variety of psychic syndromes are recognized as arising from arterio-sclerosis.

In the light of such readjustments in the pathological concepts of a single generation, it does not seem unreasonable to look forward to still further enlargement of the group arising from materialistic pathological factors, both those already known, and those yet to be discovered. The purport of this communication is to ask consideration for a hypothesis which is suggested by clinical observation, and is, at the same time, supported by the analogy of data already established. This hypothesis may be stated as follows:

1. We expect that a given human brain will, between birth and adolescence, develop normally, and achieve successfully a normal adaptation to the environment, provided that the conditions for such evolution be healthy and normal.

2. It is to be expected that an unhealthy environment of brain cells during this evolutional period would interfere with such normal development.

3. Reasoning by analogy, from effects demonstrable elsewhere in the body, we venture to assume that the long continued presence in the body of the toxins of infectious disease would constitute an interfering factor in the normal development of brain cells, and hence, to the normal evolution of the function of adaptation to environment. The congenital syphilitic mental defective is a case in point.

4. The toxins of tuberculosis and of chronic streptococcic infection are entitled to more consideration as possible factors in the production of inferior and perverted personality than has hitherto been given them.

As to tuberculosis, we know by the tuberculin test that a large percentage of the population of older urban communities becomes infected by the tubercle bacillus between the ages of one and seven years. We know that only a relatively small proportion of such infected children ever presents the picture of clinical tuberculosis. Those that escape do so through the acquisition of specific immunity. We know that immunity to tuberculous infection is acquired in the human being only through the experience of actual tuberculous disease. That is, all children who are tuberculin positive, and who have developed specific immunity, have, at some time, been the subjects of active tuberculous disease. In many children the disease is so slight, and of such short duration, that no serious deviation from normal health is noted. In others it is more severe, more prolonged, and often recurrent. Such children are not recognized as having tuberculosis, but they are

below the normal level of robust health, and are spoken of as being delicate.

During such active disease as that described, toxic material produced by the tuberculous focus is circulating in the body fluids. We know that such toxins are injurious to cells. It is not to be expected that brain tissue, which, in the growing child, is engaged in the development of memory, intellect, judgment, and inhibition, should escape the noxious effects of these toxins, nor that the healthy development of brain function should be unaffected thereby.

Corroborative clinical evidence pointing to the association of mental disorder with tuberculosis is not wanting. There has been found at autopsies on cases of dementia praecox a percentage of active tuberculous lesions that strongly suggests more than a merely coincident relationship. Also, the age susceptibility of the two diseases coincides. I have seen a case combining active pulmonary tuberculosis (sputum positive), with a clear cut picture of dementia praecox. The pulmonary lesion became quiescent, and the patient made a temporary mental adjustment by becoming a religious fanatic. During the war I saw an adherent of a fanatical religious sect, who developed the picture of a katatonic dementia praecox. He died rather abruptly shortly after admission to the hospital. Autopsy disclosed a very extensive cerebral tuberculosis A case similar to this is reported in the French literature.

An army officer, who, during the late war, was invalided home as a psychopathic case, was found to have the clinical picture of upper lobe focal pulmonary tuberculosis. With rest, the activity of this lesion subsided. His family assumed responsibility for his care, and, against our advice, he was discharged from the service. Shortly after his discharge, he killed himself.

It is not uncommon for persons who have exhibited throughout life capricious and incorrigible character, especially manifesting itself in periodic resort to excessive alcoholic indulgence, to have their lives terminate with pulmonary tuberculosis.

The early stage of manic depressive psychosis so closely resembles the depression often associated with chronic indigestion, that the ancients unhesitatingly attributed its occurrence to the predominance of black bile (melancholia). Whether chronic infection has anything to do with these cases is doubtful. They appear to belong rather to the group of metabolic intoxications, along with epilepsy and migraine. It is not impossible, however, that chronic infection may have something to do with causing the metabolic disorder of these conditions. I have seen two cases of characteristic long standing migraine completely disappear following appendectomy, which was performed, in each case, for an acute exacerbation of a chronic appendicitis.

When we come to the role of chronic focal (streptococcic) infection as a potential factor in the production of defective adaptation of personality to environment, we find an abundance of clinical evidence pointing thereto It is seen especially in that group classed as the constitutionally inferior. Whether the inferiority is physical or mental (and it is often both), the stigmata presented are conspicuous, and remarkably uniform.

During the late war the military draft brought under medical observation a complete cross section of the male population of a certain age pereiod. Before the draft recruits to the army had been volunteers. The man who volunteers to fight usually can fight, so that the problem of the constitutionally inferior candidate had not, as yet, presented itself.

The criteria of physical fitness adopted for the guidance of the medical draft boards seemed to have been designed rather to obtain a survey of the health of the population, than to procure fit material for the army. The result was that the ranks were cluttered with a mass of young men, who were totally unfit for active military service. Such recruits sooner or later came back on the base or general hospitals, and were either discharged, or terminated their military careers in development battalions.

The picture most frequently presented by such recruits was that of a man who, while he showed no evidence of actual disease, would have been recognized by any old army sergeant as a hopeless prospect for a soldier. He was tall, shambling, flat chested, sway backed, pot bellied, knock kneed, flat flooted. His hands were clammy, his eyes astigmatic, his palate arch high and narrow, his teeth crowded, misshapen and irregular. Usually his tonsils and adenoids had been removed. If not, the tonsils showed the presence of chronic infection. Inguinal rings were large, and sometimes there

was incipient hernia. Joints were prominent, and skeletal muscle deficient.

Under the physical stress and close herding of military life, his realization of his inferiority became overpowering, and he cracked. If he could cook up the appearance of some malady, it was assigned as the cause of his admission to the hospital. Otherwise, he was sent up for psychopathic observation. Most of the malingerers belonged to this group.

These men are not primarily mental defectives. Many of them are precociously brilliant, and capable of high grades of achievement along certain lines. Physically they are suited for an indoor desk job, or for membership in an orchestra. In a more strenuous social and occupational environment, realization of their inferiority makes them introverts, and their defense reaction takes the form of a compensatory exaggeration of their own personality that I have named *egomegaly*.

Cases exhibiting to a greater or less degree the defects described above are very numerous. Under wise guidance and discipline they can usually make satisfactory adjustment to a properly adapted environment. If the egomegalic complex is allowed to continue uncontrolled, they become progressively more and more introverted, and may ultimately develop permanent psychoses.

Summary

The attempt to explain the occurrence of failure to adapt to environment on the basis of disturbing experiences during early life does not give proper weight to the fact that the majority of children develop normal personalities, although they are subjected to identical, or even worse experiences during infancy and early childhood, than are those who are unsuccessful.

It seems necessary to postulate some other factor, or factors, to explain why constitutionally inferior personality is not the rule, rather than the exception.

It is suggested that the exposure of the developing brain tissue to the toxins of tuberculous and streptococcic infection in early life may be such a factor in preventing the evolution of normal personality.

Discussion

Dr. Manfred Call, Richmond: To add to the interest of this discussion, I submitted Dr. Randolph's paper to a psychiatrist for comment.

"The example from Coriat is unfortunate. Not only does he lay himself open to the same charge he brings against the psychiatrists, but one might question the fairness of judging a school or group by an isolated sentence of one of its members. . . . While encephalitis is not mentioned in the paper, this could be played up strongly.

"One might expect from the title 'The Relation of Infection in Early Life to Subsequent Mental Disorder,' that at least one of the several case histories would have some bearing on the subject. No psychiatrist disputes the effects of the presence of syphilis or the absence of thyroid. Repeatedly the author appears to forget that the psychiatrist is first of all a physician and deems it necessary to make a thorough physical examination, before proceeding to the mental aspects of the case. . . .

"This paper should be a valuable contribution because it is stimulating and thought provoking."

My own comment will touch *first* on two minor items. Like the Doctor, I have been frequently confused and as often exasperated by the occurrence in medical literature of an unfamiliar vocabulary, and mathematical terms and symbols with which I was, and am still ignorant. Reflection, however, has convinced me of the necessity for the development of a descriptive language in the evolution of a science, even though translatable only by the elect.

Second, while hypotheses are not demonstrated facts, they furnish a basis for research investigation. If the atomic theory of matter and the Ehrlich side chain theory of immunity have led, on the one hand, to "The chemical progress of more than a hundred years," and on the other hand, to "the great advances in the prevention and treatment of infectious diseases," such results have certainly justified the promulgation of these theories or hypotheses.

Speaking more specifically on the main emphasis in Dr. Randolph's paper as expressed in the title, and in the four divisions of his hypotheses: Dr. Randolph places the span for normal brain development between birth and adolescence. Gesel (whom I will frequently quote), dates the commencement of the life cycle as coincident with fertilization and has found evidence of organic behavior as early as the first month (embryonal), a considerable complement of behavior capacities has matured by the middle of the foetal period, and so advanced are those capacities that an infant may be born two or three months before the appointed time and survive. This brings into consideration intra- as well as extra-uterine growth and function. Function is defined as a dynamic series of bio-chemical and metabolic events. The factor of growth potency he attributes to the inherent protoplasmic plasticity of the individual, subject to variations in his endocrine condition, state of nutrition, and body type and build.

The comment on item 1 is equally pertinent to item 2, dealing with an unhealthy environment of brain cells during this evolutionary period, and would include intra- as well as extra-uterine factors.

The effect of the long continued presence of the toxins of infectious diseases, non-lethal, can be expected to have an untoward influence on the protoplasm of the developing, or even adult brain cell and its functional activity certainly during the existence of the toxemia, but its specific action would be largely determined by the virulence and nature of the toxic factor, as well as the duration of the toxemia, and in addition, by the selective localization of the infecting organism in the central nervous system, and whether or not nuclear impairment of the cell resulted.

Endocrine imbalance could also result from such toxemia and play an important role, directly affecting the child if its own endocrine were involved, or indirectly, through the mother, should her endocrines be involved (foetal).

It is conceivable that the toxins of tuberculous and streptococcic infections may be possible factors as indicated in item 4, without the interposition of an encephalitis, but I must believe that such effect is exceptional, and a contributing factor would result from concomitant degenerative changes in the various parenchymatous organs of the body as a whole.

Finally, it must be borne in mind that the central nervous system is remarkably resistant to the effects of general body states. "It tends to progress in obedience to the inborn determiners, whether saddled with handicap or favored with opportunity."

"Its primary function is to receive stimuli arising from changes in the environment or within the organism and to transmit them to effectors which bring about the adjustments necessary for life." (Ranson).

DR. RANDOLPH, closing the discussion: I must say a word in regard to a criticism made by Dr. Call. The example quoted by me to illustrate a certain element existing in modern psychiatry does not mean that it describes all psychiatry. The quality of the symposium on Mental Hygiene that we heard this morning would refute such a claim. But I have been in contact with psychiatrists of the present day school for twenty-five years. I was long a member of the Society for Nervous and Mental Diseases, of the District of Columbia, and I know what I am talking about, when I say that just the sort of thing illustrated in that quotation has surrounded us all the time, and makes us question whether unlimited resort to theory and hypothesis is not a disadvantage to the healthy progress of such thought as we heard this morning.

I should like very much to know how one recognizes in the foetus of a month the determining qualities of personality.

ADVANTAGES OF THE PLASTER TRACTION SPLINT.*

J. B. DALTON, M. D., Richmond, Va.

About 16 years ago, Dr. Michael Hoke, of Atlanta, devised an apparatus for the purpose of producing traction, which I believe is more effective than any method heretofore made use of. He calls this the *plaster traction splint.*

I understand that until recently the use of this form of traction has remain unpublished. In the October, 1930, issue of the *Journal of Bone and Joint Surgery*, Dr. Lawson Thornton, of the Hoke Clinic, wrote in regard to its use in treatment of fractures of the humerus.

My own knowledge of this splint dates back about three years, at which time I was visiting the Hoke Clinic. I was impressed with its mechanical principles, its simplicity and its practical use, as clinically demonstrated. This form of traction may be made use of when traction is indicated in either the humerus, the femur, or the bones of the leg.

My first step in installing this apparatus is to make my point of traction. Adhesive strips, or mole skin carefully applied, may be sufficient in some instances. I prefer skeletal traction, making use of the Steinmann pin. I have used traction tongs, which I consider cumbersome.

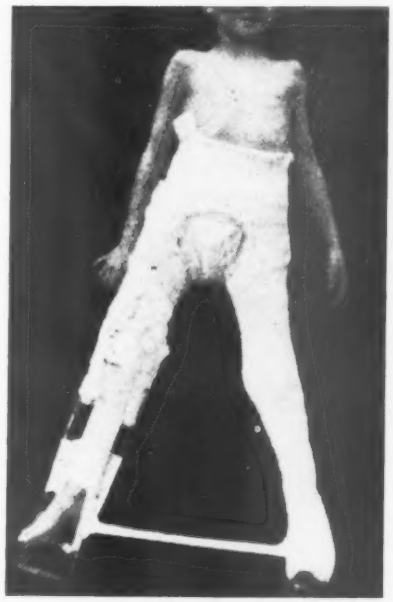

Fig. 1.—Represents traction-plaster splint installed as in case of treatment of fracture of shaft of femur.

In applying skeletal traction, some form of anesthesia is necessary, and a strict aseptic technique must be observed.

In dealing with the femur, the point of traction is made just above the knee, the leg bones through or resting on the superior surface of the os calcis, and the humerus through the olecranon. If adhesive or mole skin is used, it should reach as high as site of fracture.

In continuation of the technique, let us first consider its application to the lower extremity. All skin surface which is to be encased in plaster should be covered with stockinette over which sufficient sheet wadding is placed for protection. The plaster is now applied in the form of a double hip spica, extending from well above the costal margin to the toes on

*Read before the sixty-second annual meeting of the Medical Society of Virginia, at Roanoke, Va., October 6-8, 1931.

the uninjured extremity and to the site of injury on the affected side.

The splint itself consists of adjustable steel side bars with a windlass and ratchet arrangement at the distal extremity. The bars are

Fig. 2.—Oblique fracture of shaft of femur before reduction.

placed laterally on the affected side and fixed with several turns of plaster bandage. This is now braced with a cross-bar of wood and plaster between the splint and the opposite leg. The traction is now completed by connecting the pin or other means of attachment by inelastic cords to the windlass. As the cords are made taut, counter-traction occurs through the opposite side as a mechanical consequence. The unsupported portion of the affected limb is suspended by a hammock arrangement, just as in use of a Thomas splint.

In obtaining traction of the humerus, the principle is the same, making use of a shoulder spica. The arm is placed at right angles to the chest, and the forearm at right angles to arm. The plaster is cut away at the outer border of the forearm, sufficient to allow traction at the elbow.

There are several precautions to be considered:

1. The position of equipment must be correct and in proper alignment.

2. In case of the lower extremity, the knee of the uninjured side should be placed in a neutral position of slight flexion and be well padded.

3. The foot should be placed at right angles to the leg, and the heel and plantar surfaces should be extremely well padded. If this is overlooked, trouble will certainly be the result, for the heel acts as the pivot on which the traction is produced.

4. The principal precaution to be observed in caring for the upper extremity is that the axillary region of the affected side be well padded.

Fig. 3.—Same as Fig. 2, after reduction. Final results—limbs of equal length.

The advantages of this method of traction can be summarized as follows:

First, and most important, there is afforded a point of fixation from which there is produced a steady, continuous, unrelenting traction, which can be varied with the greatest accuracy by regulation of the windlass. No other arrangement, such as the weight and pulley, supplies this attribute.

Having no parts connected to the bed or a frame, transportation becomes practical and nursing greatly simplified. The patient can be turned without discomfort, and this should be done at least twice a day.

This equipment, when carefully installed, leaves the patient free from pain and reasonably comfortable.

Deviations in alignment may be remedied by application of pressure and manipulations during the course of traction.

Fig. 4.—Comminution of femur treated with traction-plaster splint, giving a useful extremity with no shortening.

With the use of this splint, many cases, particularly of oblique and comminuted fractures, can be satisfactorily handled, avoiding, in many instances, open operations. The traction works admirably in preparing congential dislocated hips for subsequent reduction.

When using the splint for the upper extremity, the patient is not necessarily confined to bed.

In conclusion, I believe that we have, in the use of this method of traction, gained a forward step in the handling of a very difficult class of cases, and the successful utilization of its advantages lies in the care and precision used in its application and the judgment shown in keeping the proper adjustment during the post-operative period.

1100 *West Franklin Street.*

IS THE FAMILY PHYSICIAN ANY LONGER A NECESSITY?*

J. H. HIDEN, M. D., Pungoteague, Va.

Before answering this question we may ask ourselves what sort of a man we have in view. There seems to be generally a hazy conception of the character and qualifications of this physician. This is partly because there are various types of the family physician recognized as legal practitioners. Of these, at least four types are fairly well defined.

The first type, though a man of general culture and excellent social qualities is evidently becoming a misfit and really belongs to a former age. He is more a sympathetic, neighborly adviser than a progressive physician of our day.

The second type is more commercial in spirit than either scientific or humanitarian. He enters the profession simply for a livelihood and so naturally, avoids, as much as possible, the persistent application, laborious work and trying responsibilities that are so essential for the best training. He follows the lines of least resistance and then, later on in life, wonders why he is held in so little esteem.

The third type is the medical theorist. He is well-informed in the theory of general medicine and would be a very useful physician but for the lack of practical assimilation. This deficiency carries with it timidity—and he becomes too anxious for frequent consultants. This lack of self-reliance reacts upon his patients in diminishing confidence, and this, in turn, increases his timidity and diminishes efficiency.

The fourth type is the trained clinician who is wide awake to medical progress, is self-reliant, and at home when facing responsibil-

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ity. By his close application and interest in his chosen profession he has developed a versatility of powers in many lines of his work. Indeed, it is remarkable to observe the efficiency of such men when they develop a great zeal for service. A notable example of this is recalled when a certain British physician was once asked if he were an eye specialist. His reply was, "No, only a general practitioner, but I have successfully removed several hundred cataracts."

Now with these four types of the family physician before us, it is not difficult to see that confusion of thought might arise in the public's estimate of the family physician. But this review of these different types of men does not entirely clear up the hazy atmosphere that veils this question. Other factors enter our problems as to the present value of the family physician, and to some of these I invite your attention.

1. In dealing with the progress of our age, the family physician has many innovations to face—the in-roads upon his line of work by the modern methods of holding public clinics; the vast work of preventive medicine that is conducted by both Federal and State officials; the constant rush into specialization in almost every line; the rapid accumulation of hospitals and free dispensaries all over the country and the numerous formations of group practice. All present a sort of hostile front, and his outlook for professional success seems at times almost appalling.

2. Another condition this physician faces is the dominating influence of what we call standardization. This has developed mostly from the prevailing teachings in our prominent hospitals and clinics. Doubtless, instructions along this line within conservative limits have been a blessing to our general hospital work; but, when pre sed beyond these limits, such dogmatic instructions are not altogether conducive to the general practitioner's interest, and I am glad to see considerable reaction developing among our ablest thinkers toward this wholesale demand for standardization. Allowing me a little digression just here, it seems to me we have enough to contend with in our struggle against quackery, graft, fraudulent measures of advertising, the hordes of unprincip'ed drug venders, and the tendency of the public to be so easily humbugged by these public impostors, without our own leaders inflicting hardships upon so many of our most talented and faithful within our own ranks. The truth is, the general practitioner cannot strictly follow our modern hospital views of standardization in many lines of work, but, if let alone, he can often do better by following his own judgment in any given case. This being true, many of our most talented physicians, chafing under this often autocratic influence, become restless, critical and defiant, while others, more timid, become often discouraged and hampered in their work. Others still, among the submissive class, are not always on the high road toward progress, but often fall into the rut of a sort of "self-satisfied standard mediocrity" (Henry A. Christian). Further, the able family physician fully realizes the limitations of standardization in his general practice. He sees the many conditions of life in which the personal equation and the environment enter. Every sort of a modification of the best standards under ideal conditions in almost any line may have to be made to suit entirely different classes of people living under different conditions and environment, and so, in the last analysis, the physician's qualifications, training and matured judgment must be his guides in any given case. To sum up this whole matter, to my mind, in the face of these well known facts, this continual harping upon standardization appears little more than a modern cry of a self-satisfied element, a self-glorification of what Dr. Henry A. Christian, of Harvard has termed: "A standard mediocrity." Moreover, the natural drift of this dominating course seems to be a strong tendency to undermine public con'dence in the family physician—that truest, most sacrificing and valuable friend the public has ever had.

3. Again, in dealing with the charlatan and the quack, the family physician is the man who fights the winning or losing game. Others in the profession may offer a helping hand, but because we are so vitally affected by the insidious actions of these frauds, we have to fight the battles for professional progress as well as for public health protection. This often places us in a delicate situation in the eyes of the public; for often many of our citizens view our noblest claims for public protection as merely a contention between a persecuted class of "irregulars" and the quarrelsome element of the mediocrity of the established profession. Moreover, in this fight for principle and justice, the family physician also

realizes that he is dealing with a public that cannot see beyond the surface of medical values, and is generally most fascinated with spectacular display, ostensation and what appears remarkable, failing to see any special merit in the quiet student's life of the modest, cultivated, trained physician. What a commentary upon this whole situation!

Returning to my first three types of the family physician, it is obvious that they, though often more or less useful in many localities, are not, upon the whole, meeting the requirements of our times. Under these conditions, they must necessarily lose ground in public esteem. It may be asked, then, could not these men be easily spared from the profession? My answer is positively no. They, with all their deficiencies, are still needful until we can develop other men of a higher order to fill their places; otherwise, we would open the field of medical practice to a larger percentage of quacks and nostrum venders. Our first consideration, then, should be to give these physicians a helping hand, our sympathy, and encouragement for greater efforts to meet the demand for a higher order of efficiency.

Further, the fourth type of the family physician may be again considered. As stated before, he is the well trained clinician, competent and efficient, and thus eminently qualified to make the required adjustments to the many conditions of life. By his breadth and accuracy of knowledge and powers of assimilation, he often appears to diagnose his cases by the knack of intuition. To the physician who had never acquired such an art the whole work of this accomplished physician is a series of happy guessing. This fine art, however, is exactly what the public now needs to be blessed with—a more economical and efficient service. It is also what we need to establish ourselves in public confidence. Such a development of efficiency and economy in general practice would be our greatest asset in saving the profession from drifting into the entanglement of State medicine with its ultimate autocratic domination—a condition in which we could no longer enjoy the blessings of a Jeffersonian freedom, but one that would thrust upon us a sort of Mussolini fascism.

In conclusion, my time limit will not allow me to present my feelings of admiration for the noble services rendered the public by the family physicians of our country; for I feel that if I could "speak with the tongues of men and of angels" I could hardly do them justice. So I will simply mention the value of their great work in the preservation of the medical profession itself. It has been said that the medical profession, with all its departments and conflicting interests, spreads out before us like a vast crazy quilt in a very fragile state. Seeing the profession in this light, I may add that it takes the combined efforts of the general practitioners of our country, with their high ideals of ethical training and their noble conceptions of the value of unity, to knit together these apparently incompatible sections into one grand, harmonious whole. How can any of us truthfully say that these physicians are no longer a necessity?

THE X-RAY IN EMERGENCY SURGERY.*

M. H. TODD, M. D., F. A. C. S., Norfolk, Va.

I trust that roentgenologists will pardon my seeming invasion of their domain, judging by the title of this paper. I am, of course, not in any sense an X-ray man, and can only discuss the matter from the standpoint of the surgeon.

The most important single diagnostic agency at our command in the whole field of emergency surgery is the X-ray. I wish to speak first of its use in fracture work, and then in the case of certain abdominal emergencies.

FRACTURES:

It was formerly taught that the X-ray was to be considered merely a useful adjunct in the diagnosis of fractures, which should in the first instance be diagnosed by clinical methods. The physician was enjoined to palpate the fracture as best he could, through thick or thin layers of muscle, move it about, demonstrate crepitus by rubbing the broken ends together, and try to make up his mind whether it was probably oblique, transverse or comminuted, and whether he could likely make it stay in place if he once got it reduced. It was felt that to rely primarily upon the X-ray, instead of these clinical procedures, was to confess rather a lack of diagnostic ability.

I was similarly enjoined, when I began fracture work eighteen years ago; and was soon impressed with the extraordinary degree of skill that a man would have to possess, if he were to really find out all he ought to know about a fracture by clinical means. I was

*Read before the sixty-second annual meeting of the Medical Society of Virginia, at Roanoke, October 6-8, 1931.

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fortunate in always having the X-ray immediately available, and I could not help but note the precision and clearness of the details as shown on the X-ray film, in contrast to the incompleteness of my own clinical findings.

There have been masters of surgery in the past who did not have the X-ray, and whose

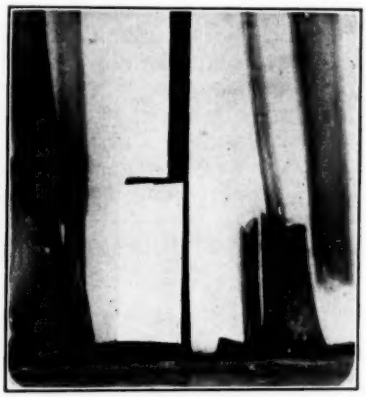

Fig. 1.—Transverse fracture: no tendency to displacement after reduction: simple splintage.

Fig. 2.—Comminuted fracture: little tendency to further displacement; good result with simple splintage.

good results in treating fractures bore witness to their personal expertness; but there is no question that the generality of end-results some years ago did not reach the high plane that we should attain today. And there can be no doubt that this was due to a lack of accurate diagnosis.

The simple fact is this, that where the X-ray is not available, the physician will have to be contented with only approximate diagnosis, and this may hamper treatment a good deal; though even so, quite good results can be obtained with care, and with experience. But with modern equipment and knowledge, almost perfect end-results ought to be the rule, and the patient has nowadays the right to expect them; and to attain such ends, a precision of diagnosis is necessary, which is quite out of the question without the X-ray. Let me illustrate my point at the end of this paper, by calling attention to several different kinds of fracture, all of which may feel much the same to the examining hand, but which call for quite

Fig. 3.—Curved fracture-line; cannot be maintained in good position by simple splintage.

Fig. 4.—Oblique fracture femur into knee-joint: either skeletal traction, or better, plating, absolutely essential to obtain good result.

different types of treatment, if suitably good results are to be obtained.

Further, there are certain fractures that give only obscure signs, and cannot be definitely diagnosed at all without the X-ray, and indeed without unusually clear films; among these are certain fractures of the spine and the pelvis. I have discussed these fractures in previous articles, and will only mention them here.*

Where, therefore, the X-ray is available, preliminary attempts to make a detailed clinical diagnosis of a fracture are not in order; for these manipulations are not only quite inaccurate, but they are entirely capable of doing considerable harm, both by adding trauma to tissues already damaged, and sometimes by causing needless displacement where the fracture was primarily in good position. I do not wish to labor the point unduly, but there is just one primarily important thing to be done when a fracture is suspected: take an X-ray.

Some care is needed in taking the film, and the roentgenologist is entitled to all the help you can give him as regards the probable location of the fracture, judging by disability, localized tenderness or deformity. The film should always be made in two planes, which should be as exactly as possible antero-posterior and lateral. Otherwise only an imperfect idea of the fracture may be obtained, with confusing distortion. Stereoscopic films may be necessary, though not often required in fractures of the extremities.

Having thus paid tribute to the supreme value of the X-ray in diagnosing fractures, let me call attention to its possible errors. In the first place, it may fail to show a fracture where one really exists. I have several times failed to definitely diagnose a fracture of the spine or the pelvis until repeated films had been made, perhaps until callus had actually appeared. Again, it is well known that the X-ray is not especially dependable in the case of fractures at the base of the skull. What is more surprising, however, is the fact that very occasionally fractures of even the smaller bones, easily visualized, may be missed; I have actually failed to find a fracture of a metatarsal until it shortly afterward became displaced.

These errors, or faults, are not at all frequent. They are similar to the occasional errors inherent in all laboratory procedures, and simply indicate that judgment is needful in interpretation.

If you will now pardon an elementary statement, X-rays should always be taken after a fracture has been reduced, to verify its position. Further, films should be taken at intervals during the period of healing, both to be sure that correct position is being maintained all along, and to follow the progress of callus formation. Many a good result has been spoiled by the fact that fractures do not always stay put, though correctly reduced at first; or by the fact that undue weight-bearing has been allowed before there was sufficient union to stand the strain.

From the medico-legal standpoint, nothing is more important than to have X-ray records of the case; for juries are nowadays perfectly familiar with the fact that these should be taken, and failure to do so can only be interpreted by them as evidence of incomplete treatment.

One other point that I wish to mention, before leaving the subject of fractures, is the method of reducing them under direct vision. by the fluoroscope. This is a most efficient procedure, and permits a finesse and an exactness of control that can hardly be obtained in any other manner. It is always to be recommended where the equipment is available.

Before passing to abdominal emergencies, let me mention that infection with the bacteria of gas gangrene can be determined quite early by the X-ray film; much earlier than the appearance of crepitation. Gas is shown as little dark bubbles in the soft parts, very easily seen if looked for; and their detection may enable early treatment that will avert the necessity of amputation, and may indeed save life. The point is to be remembered especially in treating compound fractures, though it is quite true that the infection is unusual. By the way, a little air sometimes gets into the tissues in compound fractures, and gas may be feared; but it does not increase, and repetition of the film after a few hours will clear up the matter.

ABDOMINAL EMERGENCIES:

In two abdominal emergencies, namely acute perforation and acute intestinal obstruction, the X-ray will establish the diagnosis earlier, and more certainly, than any other agency.

Perforation.—Acute perforation of any part of the stomach or intestine will practically

*M. H. Todd, Fractures of the Pelvis, **Va. Med. Monthly**, March, 1931; Fractures of the Spine, **Southern Med. & Surgery**, June, 1931.

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always permit the escape of gas within the peritoneal cavity; that is, pneumoperitoneum. If then the patient is held up sitting for a moment, a film taken through the middle of the trunk will show a little clear line of gas separating the diaphragm from the liver. This

Fig. 5.—Diaphragm separated from liver by gas; acute perforation of intestine.

Fig. 6.—Dilated small bowel, with suggestion of ladder pattern; acute obstruction.

is an infallible indication of perforation, the only other condition giving rise to it being the surgical curiosity of gas bacillus peritonitis.

It can be detected very early after perforation has occurred—within the hour as a rule. It is important to have the patient hold his breath momentarily, and the exposure should be brief or snapshot.

This diagnostic sign is present after any form of rupture or perforation—gunshot or stab wounds, typhoid perforation, perforation of duodenal ulcer. There is one exception: perforation of the appendix does not give the sign, for usually no gas escapes; and occasionally, perforation of the stomach is said not to give it, for occasionally it contains no gas or air, so that none escapes. Otherwise, the X-ray sign is pathognomonic. Let me emphasize that I am speaking of acute perforation: not subacute or chronic perforation of gastric ulcer for instance on the posterior surface, slowly forming an abscess. I am limiting myself in this paper to emergency conditions.

Fig. 7.—Drawing from illustration by Case, article cited; fluid levels, surmounted by gas, in small bowel area: acute obstruction.

I should like to refer you to my previous article on this subject, in which case histories are given, and some of the literature discussed.*

Obstruction.—The fact that acute ileus, intestinal obstruction, can be shown by the X-ray is not very generally known. The matter has been clearly described by Case, of Chicago,† and I have had opportunity to verify his statements several times personally.

If flat films are taken of the normal abdomen, gas is to be seen in the large bowel, but little or none in the small bowel. In the presence of obstruction of the small bowel, however, gas is to be found in the middle of the abdomen in the small bowel area, and dilated loops may be made out, sometimes with the

*M. H Todd: **Amer. Journal Surg.**, May, 1927, p. 449: Roentgenography in the Diagnosis of Gastro-Intestinal Perforation.

†Case, Jas. T.: **Amer. Jour. Roent. & Rad. Therapy**, May. 1928: Roentgenological Aid in Diagnosis of Ileus.

ladder arrangement. In addition, if the patient is held up sitting for a moment, a film will show little collections of gas in the small bowel area, with separate fluid levels below them.

Barium is not generally necessary, and I think it is well not to use it if it can be avoided; but if it is used, a characteristic herring-bone appearance of the dilated small bowel may be seen, and this clearly shows its obstruction and dilatation.

I am not prepared to say that this sign is as certainly reliable as the sign of perforation described above; for in at least one case of my own, the X-ray appearance of obstruction was pretty definite, and yet the patient was relieved by enemas with disappearance of the signs in the succeeding film. But where the abnormal appearance persists, laparotomy becomes advisable, and may be obligatory.

The X-ray sign of obstruction becomes definite long before any other clear indication is present: long before noticeable distention or feculent vomiting, and before there is any alteration in the facial expression to indicate trouble.

I cannot too strongly urge that in this difficult condition, the X-ray film be made as a routine when there is doubt; though as I have said, clinical judgment must by no means fail of being used.

PNEUMONIA:

This is, of course, not an abdominal condition at all, nor a surgical one; but it sometimes gives very confusing abdominal symptoms. I simply wish to mention it because the X-ray will often confirm or rule out its presence. And it is certainly very uncommon to find a patient suffering both from pneumonia and from an abdominal emergency at the same time, and indeed I have personally never come across such a case, though I realize that there is no law against it. So that if pneumonia is found, it may serve as an explanation for some of the abdominal pain and tenderness that the patient is having; and I should say that it justifies a little delay before a decision is made to perform laparotomy.

SUMMARY

The X-ray, where available, is the procedure of primary importance in the diagnosis of fractures. It should be carefully taken, and will nearly always give accurate information with a detail that cannot be obtained in any other way. Follow-up X-rays should always be taken, and should be kept as records. It is necessary, however, to remember that the X-ray is not quite infallible, and unless interpreted with judgment, may lead to wrong conclusions.

In acute gastro-intestinal perforation, the X-ray will show gas above the liver, clearly separating the diaphragm from it; the sign is pathognomonic.

In acute intestinal obstruction, the small bowel may be seen to be dilated and show separate fluid levels surmounted by gas. This sign is very strongly suggestive, and appears early. I am not prepared to say that it is as certain as the sign of perforation, but it may help enormously in early diagnosis, and should never be omitted when there is doubt.

712 *Botetourt Street.*

TRANSPLANTATION OF THE URETERS INTO THE LARGE INTESTINE: WITH A REPORT OF THREE CASES.*

A. I. DODSON, M. D., F. A. C. S., Richmond, Va.
From the Department of Urology, St. Elizabeth's Hospital.

The successful transplantation of the ureters into the large intestine is dependent upon the formation of a valve at the point of anastomosis for the protection of the kidneys. The discovery of the valve principle by Dr. Robert C. Coffey while transplanting the common bile duct, in 1909, and the application by him of this principle to the transplantation of the ureters, in 1910, have revolutionized the treatment of exstrophy of the bladder and many other conditions in which the bladder must be dispensed with as a reservoir for urine.

The valve is formed by making an incision about an inch in length through the peritoneal and muscular coats of the intestine, exposing the mucous membrane. The ureter which has been prepared for transplantation is passed into the lumen of the bowel through a stab wound in the mucosa at the lower end of the incision and muscular and peritoneal coats are closed over the ureter so that for almost an inch only the mucous membrane lies between the ureter and the lumen of the bowel. This intervening mucous membrane functioning as a valve protects the kidney and ureter from the pressure existing in the bowel and from the regurgitation into the ureter of intestinal gases and fluids.

*Read by title at the sixty-second annual meeting of the Medical Society of Virginia, at Roanoke, October 6-8, 1931.

Previous to Coffey's experimental work in 1909, numerous efforts to transplant the ureters into the intestine had been made with only an occasional success. The discussion of the most noteworthy of these attempts, together with the development of his own operation is ably presented by Dr. Coffey in a paper entitled "Transplantation of the Ureters into the Large Intestine" (*Surgery, Gynecology and Obstetrics*, November, 1928, pp. 595-621).

My first transplantations were done on dogs in 1922. Of six animals operated upon, five survived and were examined at intervals of from two weeks to one year. In one of these there was obstruction of the ureter at the point of anastomosis, apparently due to inflammatory reaction. In the remaining four, there were functioning valves and normal kidneys on the transplanted side.

In December, 1929, I first had an opportunity to use the method in a case of exstrophy of the bladder. About six months following the first operation which resulted in death from peritonitis, I was fortunate in securing two other cases, and the results of the operation in these cases proved in every way satisfactory.

Case Reports

Case 1.—Mr. J. A., age 21, was admitted to the Sheltering Arms Hospital on December 5, 1929, because of incontinence of urine. The patient's health and development had been normal since birth with the exception of the fact that he had a complete exstrophy of the bladder, with resulting incontinence.

Physical examination showed a well-developed, young man with all physical findings normal except chronic tonsillitis, dental caries, some shortening of the distal phalanges of the fingers with rather small nails, and a bulging, eroded mass just above the pubis. There was a deficiency in the pubic arch and the penis was short, flat, and somewhat curled upward. The urethra was absent. The ureteral orifices could be made out near the lower angle of the mass and from them urine spurted intermittently.

The urine was alkaline, specific gravity 1021, and contained a definite trace of albumin, and microscopically a few leukocytes and a few red blood cells. Blood examination showed hemoglobin 95 per cent, leukocytes 5,000, polymorphonuclears 50 per cent, eosinophiles 3 per cent, lymphocytes 47 per cent. Blood urea 32 mg. per 100 c.c. Blood Wassermann was negative.

The patient developed chickenpox shortly after his admission which delayed operation nearly two weeks.

On December 21st, both ureters were transplanted in the upper rectum near the sigmoid, in the following manner: A long incision was made just to the left of the midline and the intestines were packed off well above the true pelvis with gauze. A soft rubber-covered clamp was placed on the sigmoid about twelve inches from the anus. The patient's hips were pulled toward the foot of the table and an assistant passed a sigmoidoscope up to the clamp on the intestine. A small rubber tube was passed through the sigmoidoscope and a current of water turned on, washing out the bowel as the sigmoidoscope was gradually withdrawn. As soon as the fluid returned perfectly clear, the irrigation was continued with a pint of 2 per cent solution of freshly-prepared mercurochrome. All the fluid possible was drained off and the sibmoidoscope was again passed up to the clamp and with a pair of long forceps, this portion of the bowel was lightly packed with gauze. The ureters were then identified, dissected free for about three inches, ligated as near the bladder as possible, and divided near the ligature. The stumps were cauterized with pure carbolic acid. The proximal stumps were brought into the wound and split for about one-quarter of an inch. Two No. 10 ureteral catheters prepared by placing a cuff of rubber tubing around them about 10 cm. from the tips were then passed into the ureters up to the rubber covering. The ends of the ureters were pulled over the rubber covering and each ureter was tied to its catheter with two ligatures of 00 plain catgut, one over the rubber-covered area and one just immediately above it. Two incisions were then made, one about the junction of the rectum and sigmoid on the left side, passing from the junction of the colon and mesocolon downward and toward the midline at about an angle of 45° until the midline of the intestine had been reached. The incision was deepened until the mucosa could be seen bulging into the wound for the entire length of the incision. The muscular coats were stripped back with the handle of a knife. A similar incision was made on the right side of the bowel about two inches below the lower end of the left incision. Stab wounds were then made in the lower angles of the intestinal

wounds and a wisp of gauze from the packing was pulled through each stab wound. With fine linen the lower ends of the catheters were sutured to the gauze. (Figure 1.) The gauze

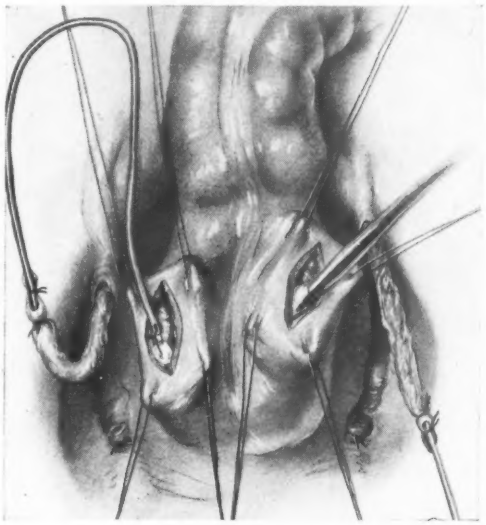

Fig. 1.—First stage of Coffey operation of transplantation of ureters in the large bowel. The intestines have been packed off, a clamp has been placed on the lower sigmoid, and the rectum and portion of the lower sigmoid have been irrigated and packed with gauze. Incisions have been made down to the mucosa and catheters fixed into the ureters. Gauze has been brought into the lower angle of the wound in the intestine and the tip of the catheters sutured to it. As the gauze was withdrawn from the rectum, the catheters and ureters were pulled into the bowel.

was then gradually removed from the anus and the catheters were guided into the lumen of the bowel. As the catheters appeared at the

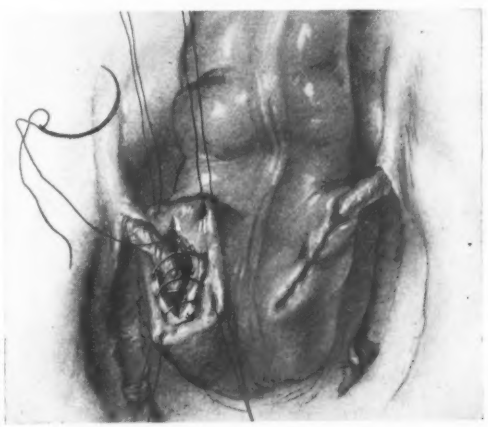

Fig. 2.—On the right side the ureter is seen lying in its newly-formed bed, the muscular coats of the bowel being sutured over the ureter. On the left side the peritoneum has been likewise sutured.

anus, they were grasped and pulled upon until the ends of the ureters were brought into the bowel for almost an inch. The remaining gauze was then removed from the rectum. Interrupted sutures of 00 tanned catgut were placed in the lower angle of the intestinal wounds, including the muscular layers of the intestine and a bite in the ureters. The wounds in the bowel were then sutured over the ureters with two rows of continuous sutures of 00 tanned catgut, the last suture closing in the peritoneal surface. (Figure 2.) The flaps of parietal peritoneum which had been dissected from the ureters were brought over and sutured to the bowel in such a way as to cover the area of transplantation. (Figure 3.) A gauze pack was placed in the pelvis and walled off from the general peritoneal cavity with a layer of thin rubber tissue. The gauze and rubber tissue were brought out at the lower angle of the wound. The wound was closed in layers, the peritoneum with a continuous mattress suture of No. 1 tanned catgut, the aponeurosis with a continuous lockstitch suture of No. 1 tanned catgut. Several interrupted sutures of s. w. g. were taken, including the muscles, aponeurosis and skin. The skin was closed with a continuous mattress suture

Fig. 3.—The completed operation. The flaps of parietal peritoneum have been sutured across the bowel, entirely covering the field of operation.

of 00 tanned catgut and the s. w. g. sutures were tied across the wound.

The anesthetic lasted two hours and fifty minutes. The operation lasted two hours and

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thirty-six minutes. The patient left the table in good condition, pulse 100.

On the night following the operation, there was a rather sharp rise of temperature to 104, pulse 130. On the following day, the temperature dropped to 101, pulse to 110, and remained about at this level with occasional fluctuation of the temperature down to 99 for twelve days. On the day following the operation, there was an elimination of twenty-six ounces of urine, about equally divided between the two kidneys. During the remainder of the patient's life, the output of urine ranged from about 1,500 c.c. to 2,000 c.c. in twenty-four hours. On the day of his death, January 3rd, thirteen days after operation, the elimination was 1,800 c.c. of urine. For ten days after the operation, with the exception of the temperature as noted and a moderate degree of distention, the patient did quite well. He enjoyed his food and complained of no particular discomfort.

On December 26th, five days following operation, the right catheter was draining poorly and was removed without difficulty. The left catheter was removed the following day. There was no change in the patient's condition immediately following removal of the catheters. Drainage was removed on the 28th of December, seven days after the operation. At this time an abscess was found in the abdominal wall and was opened and drained with no apparent influence on the course of the temperature. On January 1st, ten days after operation, the temperature went again to 103, pulse 103, and the patient began to vomit. On the following day, he was in about the same condition and a high enterostomy was done on the left side. Although the enterostomy drained well, the patient continued to vomit and grow worse, and he died on January 3rd from general peritonitis. The following is an abstract of the autopsy report:

"*Anatomical Diagnosis:* General peritonitis; multiple purulent sinuses honeycombing abdominal wall; congenital exstrophy of the bladder with ureters opening on to lower abdomen just above the symphysis pubis; congenital malformation of the penis with very wide complete epispadia; recent technically successful operation for implantation of the ureters into the rectum; pyelitis and multiple cortical abscess of both kidneys; ureteritis of the ends of both ureters just above their implantation into the wall of the rectum; recent left rectus operative incision, now badly infected.

"*Microscopical Diagnosis:* 1. Kidneys: Pyelonephritis with multiple small abscesses. Cloudy swelling of renal tubular epithelium. 2. Rectum: Subacute proctitis. 3. Adrenal: Marked fatty degenerative infiltration of cortex. 4. Chronic epididymitis."

I was present at the autopsy and the kidneys, while definitely infected, would in my belief have recovered in the absence of a general peritonitis. It is probable that the infection of the peritoneum had something to do with the kidney infection. The cortical abscesses mentioned were few in number and very small. The cleanest portion of the abdomen seemed to be that area about the transplanted ureters, and the peritonitis, which would have been from the colon bacillus had the infection arisen from the site of anastomosis, was definitely streptococcic. It is my belief that the abdominal wound was infected in some way during the operation and that there was a wound abscess which ruptured into the peritoneal cavity, setting up the general peritonitis. This conclusion was reached because the entire peritoneal suture area had broken down, the peritoneal margins were widely separated, and the abdominal wound definitely infected with

Fig. 4.—Master B. G., age five years. Drawing made following operation for transplantation of both ureters into the large bowel by the Coffey technic. Drawing illustrates the deformity as noted in this condition.

burrowing abscesses into the surrounding tissues. The patient had recently recovered from an attack of chickenpox and some scabs were

noticed on the body, one of which was on the abdomen, at the time of operation.

Case 2.—Master B. C. G.,* age 4½ years, was admitted to St. Elizabeth's Hospital April 23, 1930, because of incontinence of urine since birth. With the exception of the bladder defect and a right inguinal hernia which necessitated operation at eighteen months because of strangulation, his health and development had been normal.

He was a fairly well-nourished child, and the general physical examination was negative except for a recurrent right inguinal hernia and a red, protruding mass just above the pubis. (Figure 4.) The area contained a number of eroded areas which bled readily. Near the lower margin were the ureteral orifices from which urine spurted at regular intervals. The pubic bony arch was incomplete, the rami being joined by a fibrous band. The urine collected from the surface was cloudy, acid, showed a trace of albumin, a few pus cells and red blood cells. Blood examination showed hemoglobin 65 per cent, r. b. c. 3,000,000, leukocytes 7,160, neutrophiles 60 per cent, small mononuclears 23 per cent, large mononuclears 3 per cent, eosinophiles 3 per cent, basophiles 8 per cent, myelocytes 2 per cent. Blood Wassermann was negative.

This patient was operated upon April 24, 1930, the same procedure being carried out as in Case 1, with the exception that in place of the gauze pack in the pelvis for drainage two cigarette drains were placed down into the pelvis just below the transplanted area and brought out to the left of the incision through a stab wound. The catheters drained well and the child's condition was satisfactory until the third postoperative day when he became greatly distended and vomited. An enterostomy was done which drained well. The distention and vomiting were relieved and within twenty-four hours his condition was again satisfactory. Both catheters were removed on the fifth postoperative day. There was no reaction following removal of the catheters. The urine drained freely from a small rubber tube which was placed in the rectum when the catheters were removed. He had a normal stool on the tenth postoperative day and the enterostomy tube was removed. His convalescence continued uneventful, and he was discharged May 23, 1930, in good condition.

He returned to the hospital April 20, 1931, for repair of a right inguinal hernia and removal of the exstrophied bladder.

At the present time, the child is in good health, his weight and appearance are normal, and he retains his urine four hours or longer during the day and frequently sleeps through the night.

Case 3.—Lillie H., age 5 years, was admitted to Sheltering Arms Hospital on June 22, 1930, because of constant dribbling of urine since birth. She had some difficulty at times controlling her bowels, otherwise her health had been good.

The patient was small for her age and appeared anemic. The general physical examination was negative with the exception of a dark red, protruding mass just above the pubic region. (Figure 5.) The mass was covered with congested mucous membrane. Near the lower border of the area, the ureteral orifices could be seen, from which urine spurted at frequent intervals. The pubic arch was incomplete, there being a separation of about two inches. The external genitalia were normal with the exception of the apparent absence of a clitoris. The urine collected from the surface contained a faint trace of albumin, few pus cells and numerous red blood cells. Blood

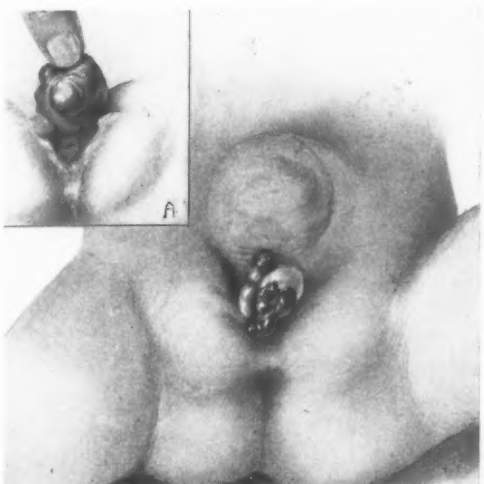

Fig. 5.—Lillie H., age five years. Drawing showing protruding bladder mucosa and abdominal hernia which frequently accompanied cases of exstrophy of the bladder.

*This case reported as part of a Clinic in Urology for Dr. John R. Caulk (**Southern Medicine and Surgery**, May, 1931, p. 320).

examination showed hemoglobin 50 per cent, leukocytes 18,000, polymorphonuclears 66 per cent, small mononuclears 34 per cent. Two days following admission she developed a rash and a moderate temperature and was in quarantine for about ten days as a scarlet fever suspect.

The patient was operated upon on July 16, 1930, and the same procedure was carried out as in Cases 1 and 2 with the exception that no drainage was used, and no packing was used in the rectum. (Figure 6.)

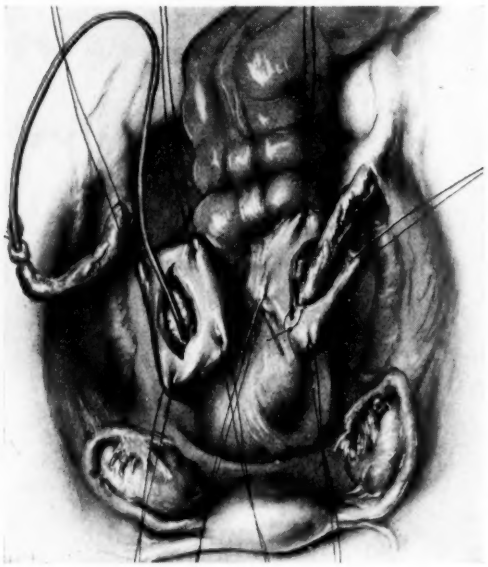

Fig. 6.—Catheters were fixed in ureters and passed through a nick in lower angle of wound in the intestine. An assistant with fingers in the rectum grasped catheters and pulled them down, pulling the ureters into the bowel. By dispensing with the gauze packing in children, time is saved and there is less trauma to the intestinal mucosa.

The immediate postoperative course was uneventful. The catheters drained well until the fourth day when both were removed. On the following day the temperature was 104° F., gradually declining to normal in about ten days. Two weeks following operation, the patient was out of bed and in good condition.

On October 9th, she was operated upon for removal of the exstrophied bladder and closure of the defect. She was discharged from the hospital November 1st in good condition. She had gained in weight, and had fair control of her rectal sphincter. The family physician stated, October, 1931, that the child has gained considerable weight, and the control though not perfect has improved. She frequently goes the entire night without an evacuation. She has had no further attacks of pyelitis.

Discussion

Three cases of transplantation of the ureters into the large intestine are presented, the first resulting fatally apparently from some break in operative technic. The infection, from all the evidence we were able to gather, did not arise from the site of the anastomosis. In the second case, there was an intestinal obstruction which may have been due to the placing of cigarette drains in the pelvis.

The third case, in which no drainage was used, made a smoother postoperative recovery, and in view of the fact that in neither of these cases was there any evidence of infection at the site of anastomosis, I feel that operation without drainage offers the best chance of a smooth convalescence and good results. In the third case no packing was used in the rectum. It seems to me that when an assistant can easily reach the catheters in the bowel, as in small children, the operation might be done quite as satisfactorily without the packing and with less trauma to the intestinal mucosa and a shorter anesthesia.

The operation for transplantation of the ureters, as developed by Coffey, offers the only satisfactory procedure of dealing with exstrophy of the bladder. It provides a safe method of handling those patients whose bladders have become useless because of destruction of the sphincters, intolerable pain, etc. It affords a possibility of more satisfactory treatment of certain types of malignancy of the bladder by transplantation of the ureters and complete destruction of the bladder either by surgical extirpation or by the cautery and radium.

INDUCTION OF LABOR BY THE ARTIFICIAL RUPTURE OF THE MEMBRANES.*

M. PIERCE RUCKER, M. D., Richmond, Va.

Progress in medicine rarely proceeds in straight lines, and our ideas and practices are more than apt to develop in cycles. The subject under discussion is a beautiful instance of this.

Herbert Spencer gives the following account of the "origin and mode of employment of

*Read at meeting of the Manchester Medical Society, September 1, 1931.

that purely English operation, induction of premature labor in cases of contracted pelvis. The first account of this method of treatment, which originated at a meeting of London obstetricians in 1756, was given to Denman by Dr. Christopher Kelly, and the first operation was performed successfully by Dr. Macaulay on the wife of a linen draper in the Strand. It was chiefly due to Denman's adoption and judicious advocacy that the operation became a favorite one in this country, long before it was accepted abroad."

"Denman employed it also successfully in two cases where previous children had died in utero at an advanced period of pregnancy."

Ramsbotham devised an instrument for the purpose of rupturing the membranes, on the principle of the tonsillancet, but shaped like a female catheter. He describes the mode of using it as follows: "Duobus sinistrae manus digitis, primo secundoque videlicet, in vaginam intromissis, index per os uteri inserendus est; deinde instrumentum, illo digito directum, usque ad ovuli membranas adferendum; quo facto ejus punctum occultum dextrae manus pollice intus pressum tenuia foetus involucra facile aperit, aqua uterina per canalem argenteum libere fluit, partusque dolores mox supervenient."

The present generation of obstetricians had apparently forgotten about the operation except for cases of hydramnion and occasionally for marginal placenta previa and abrupto placenta. Recently at Johns Hopkins the method as applied to normal cases at term has been revived because of a letter to Dr. J. M. Slemmons to Dr. Williams recounting enthusiastically his experiences with the method in private practice. Guttmacher and Douglas report upon 120 cases, 115 being term pregnancies. They divided their cases into three groups. In the first, they used quinine, castor oil, hot soapsuds enema and pituitrin applied intranasally. In the second group, they left off the pituitrin, and in the third group, they simply ruptured the membranes without any medication. All of their cases went into labor, but some had a long "latent period," the longest being fifty-two hours. In three cases the method was deemed unsatisfactory. The first, a xii para, had a latent period of forty-eight hours, developed an intrapartum infection that killed the baby and was finally delivered by craniotomy after manually dilating the cervix. The second unsatisfactory case, a v-para, had a latent period of forty-two hours. This patient also developed an intrapartum infection and was delivered by bag and mid forceps of a live baby. The third case, an ix-para, had a latent period of eight and three-fourths hours. A bag was introduced for the sake of the baby, which was born alive and spontaneously after a labor of four hours and thirty-five minutes.

In comparing the three groups, the authors conclude that the latent period was markedly shortened by preliminary castor oil and quinine but was apparently little influenced by the pituitrin. The amount of amniotic fluid that was lost when the membranes were ruptured apparently had no effect on the length of labor. The character of the cervix on the other hand had a direct influence. In general, the longer the cervical canal the longer the labor. The maternal and fetal results compared favorably with those of the clinic as a whole, there being no maternal deaths and a neonatal mortality of 5.88 per cent as against a neonatal mortality of 5.16 per cent in the last 14,315 deliveries in the clinic.

When compared to the group of induced labors with bags and bougies, the rupture of the membranes appeared unquestionably superior. When compared to a group of one hundred cases in which the membranes ruptured spontaneously before the onset of labor, the latent period was found to be longer in the spontaneous group (twice as long in the multiparae and four times as long in the primiparae) but there was no decided difference in the length of labor.

Our own study began with the appearance of Guttmacher and Douglas' article, and with the cases that Dr. Whitfield has kindly put at my disposal, comprises sixty-four. Twenty-nine were primiparae and thirty-five were multiparae. There was one set of twins among the latter. Fifty-three were at term and eleven were premature. Unlike Guttmacher and Douglas' group, ours were somewhat more difficult than our average cases. Eight cases had justo-minor pelves; three, flat rhachitic; and three, funnel pelves. Seven patients (20 per cent of the multiparae) gave the history of having lost one or more babies at previous deliveries. One patient had a well-marked diabetes and one case had a serious mitral stenosis with fibrillation and congestive

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heart failure that was extremely difficult to control. The premature inductions of labor were done for the following conditions: toxemia, five times; contracted pelvis, four times (two of these gave history of neonatal deaths): once for increasing melancholia and once for serious heart disease (the case mentioned above).

In no case did we find it necessary to use an anesthetic for the rupture of the membranes. Various anesthetics and combinations of anesthetics were used in the conduct of labor. Sodium amytal either alone or supplemented with hyoscin was used forty-four times. Avertin was used thirteen times. Ether was used for the actual delivery thirty-five times, spinal anesthesia nine times, nitrous oxide-oxygen twice and chloroform once. When sodium amytal was used it was given before the membranes were ruptured. This made the operation somewhat more difficult as many of the patients were restless and uncooperative. On the other hand, the patients were pleased with this arrangement as they had no remembrance whatever of anything in connection with the birth of the baby except the initial dose of castor oil and quinine.

No attempt was made to determine the average duration of the latent period as many of the patients were so thoroughly under the analgesic that it was impossible to tell just when the pains started. The total duration of labor, from the time of the rupture of the membranes until the delivery of the placenta averaged fifteen and three-tenths hours in the primiparae and eight and four-tenths hours in the multiparae. In five cases bags were used when the patient did not go into labor within twenty-four hours. Three of these were primiparae and their labors lasted forty-eight, thirty-two, and sixty-four hours, respectively. If these be deducted the average duration for the primiparae was eleven and five-tenth hours. The two multiparae who were bagged had labors lasting eighteen and twenty-nine hours and if these be excluded the average duration of labor for the multiparae was seven and five-tenth hours.

For a number of years it has been my custom to deliver my patients as early in the second stage as was compatible with the safety of both mother and child. For this reason the number of operative deliveries in this series is no reflection on the method of inducing labor. There were nineteen spontaneous deliveries, fifteen mid forceps operations, twelve low forceps, thirteen versions and extractions, and five breech extractions. It is interesting to note that duration of labor in the breech cases varied from seven to twenty-eight hours and averaged fourteen hours. In none was it necessary to use a bag to aid in the dilatation of the cervix.

TABLE I

SHOWING AVERAGE DURATION OF LABOR

	No. of Cases	*Aver. Duration of Labor*
I para	29	15.3 hours
II para	13	9 5 hours
III para	11	7.7 hours
IV para	4	7.2 hours
V para	3	12. hours
VI para	1	7. hours
VII para	1	4. hours
VIII para	1	5. hours
IX para	1	5. hours

Four patients had a febrile puerperium. Two of these had definite mastitis to account for the fever, which occurred after they had left the hospital. One patient developed a dysentery with moderate fever that began on the second day and lasted until the seventh day of her puerperium. The remaining one case had a low grade genital tract infection with a temperature above 100.4 for several days. There were no maternal deaths. There were three neonatal deaths, all occurring in the premature group. Two were delivered of toxic mothers and measured 44 cm. and 45 cm. total length. The third was an antepartum death. The mother was sent to the hospital at the seventh month with diagnosis of probable dead fetus. The rabbit modification of the Aschheim-Zondek test was negative and the X-ray films showed very definitely Spalding sign. Accordingly labor was induced and the mother delivered spontaneously a macerated fetus. These three deaths in sixty-five babies (one set of twins) gives a gross neonatal mortality of 4.31 per cent. There were no fetal deaths among the term cases.

Comment: The artificial rupture of the membranes for the induction of labor is a useful and reliable method.

In 7.8 per cent it was deemed advisable to supplement the method with bags, as it has been shown by Guttmacher and Douglas that a long "latent period" is conducive to infection.

The total duration of labor was fifteen and

three-tenths hours for primiparae and eight and four-tenths hours for multiparae.

The cases at term did better than the prematurely induced cases. The total duration of the premature labors averaged fourteen and eight-tenths hours. Two of the premature cases required bags.

The duration of the breech cases averaged fourteen hours.

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Medical Arts Building.

MYELOGENOUS LEUKEMIA WITH AN ALEUKEMIC STAGE SIMULATING AGRANULOCYTOSIS—A CASE REPORT

HAROLD W. POTTER, M. D., Newport News, Va.

There are some internists who hold that all cases of agranulocytosis are aleukemic stages of myelogenous leukemia. This premise is not substantiated. The cases which have recovered and have had no history of recurrence, I believe, disprove this theory. Likewise, cases like that of Rutledge *et al*,[1] observed for many years with recurring agranulocytosis associated with furunculosis, certainly would suggest that all cases do not terminate in myeloid leukemia. However, the case that I report here, certainly in its first stage, gave the clinical and laboratory picture of agranulocytosis, and it terminated with the picture of myelogenous leukemia. There is one factor in this case which must be considered in thinking of the first stage as an aleukemic stage of a leukemia, namely, the effect of X-ray therapy. This case was given seven irradiations of one-half erythema dose each, and, as a very unusual reaction was noted following the last two irradiations, it may be that the stimulation of the bone marrow produced the second stage of leukemic reaction.

Very little is known concerning the effect of X-ray therapy on the blood picture of the blood dyscrasias. We use this method of treatment in a frantic effort to save our patient from a disease which is usually fatal, and with the hope that it will, in one type of case, stimulate the bone marrow to put out more granulocytes, and, in other types, we use it to decrease the number of white cells. St is true that in the first type, namely, agranulocytosis, we use a stimulating dose, and, in the other, we use a destructive dose, but it still remains true that even the best of roentgenologists are at a loss to know what happens following therapy in these cases.

If we accept Isaacs'[2] theory, that mild doses hasten the maturation of primitive cells, and heavy doses push the cells on to senility, then we might assume that, in the case reported here, the seven exposures were sufficient to mature enough cells to clear up the picture of agranulocytosis in the first stage, and then the continued action, or delayed action, would finally produce enough maturation to produce the picture of leukemia.

The case report which follows is presented in two parts, representing the two stages of the illness, so that the blood pictures can be separately studied.

The period between the two stages is from January 4, 1930, to January 18, 1931, two weeks elapsing between the patient's discharge from the hospital and his second admission.

Table I is the temperature chart for the week of December 12th to December 18th.

Table II gives the laboratory reports of the first stage, and Table III presents the reports for the second stage.

CASE REPORT

Patient, R. S., white, male, aged 17 years, occupation electrician, first seen on December 2, 1930.

Chief Complaint:—Infected leg just below right knee. Inguinal adenitis, right.

Previous Personal History:—Negative.

Family History:—Negative.

Present Illness:—Ten days previous to onset patient had suffered an abrasion just below the right knee. This wound was caused by being struck by a piece of falling tin. Inasmuch as it caused no discomfort, it was neglected. A small amount of pus was noted by the patient after a few days, and on Decem-

1. Rutledge, B. H. Hansen: Pruss, O. C.; and Thayer, W. S.: Recurrent Agranulocytosis. **Bull. Johns Hopk. Hosp.**, 46:369-389, June, 1930.

2. Isaacs, R.: Blood Changes in the Leukemias and Lymphotomata. **Amer. Jour. Roentgenology**, 6:648-655, December, 1930.

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ber 4, 1930, a swelling in the right inguinal region appeared. I called to see the patient the following day and found a small amount of pus at the site of the original injury, and a fairly marked right inguinal adenitis. No evidence of venereal disease was found. The pus in the wound on the leg was evacuated and hot wet dressings of magnesium sulphate applied. An ice-bag was applied to the inguinal region. The following day the inguinal swelling had softened down in the center and the patient was sent to the hospital for surgical drainage. The temperature during these days at home had been elevated to 104. A blood count was ordered on admission to the hospital and only 3 per cent of granulocytes were found. The complete picture is given under laboratory reports. It was decided after this count was done to take a section of the gland involved for biopsy. This was done under ethyl anesthesia.

Physical Examination:—Fairly well developed white boy, aged 17 years. Looked acutely ill. B. P. 120/85. Temp. 103.4; pulse 100; resp. 20.

Patient showed evidences of anemia. Head, neck, mouth, throat, and lips were negative at this time.

GRAPHIC CHART

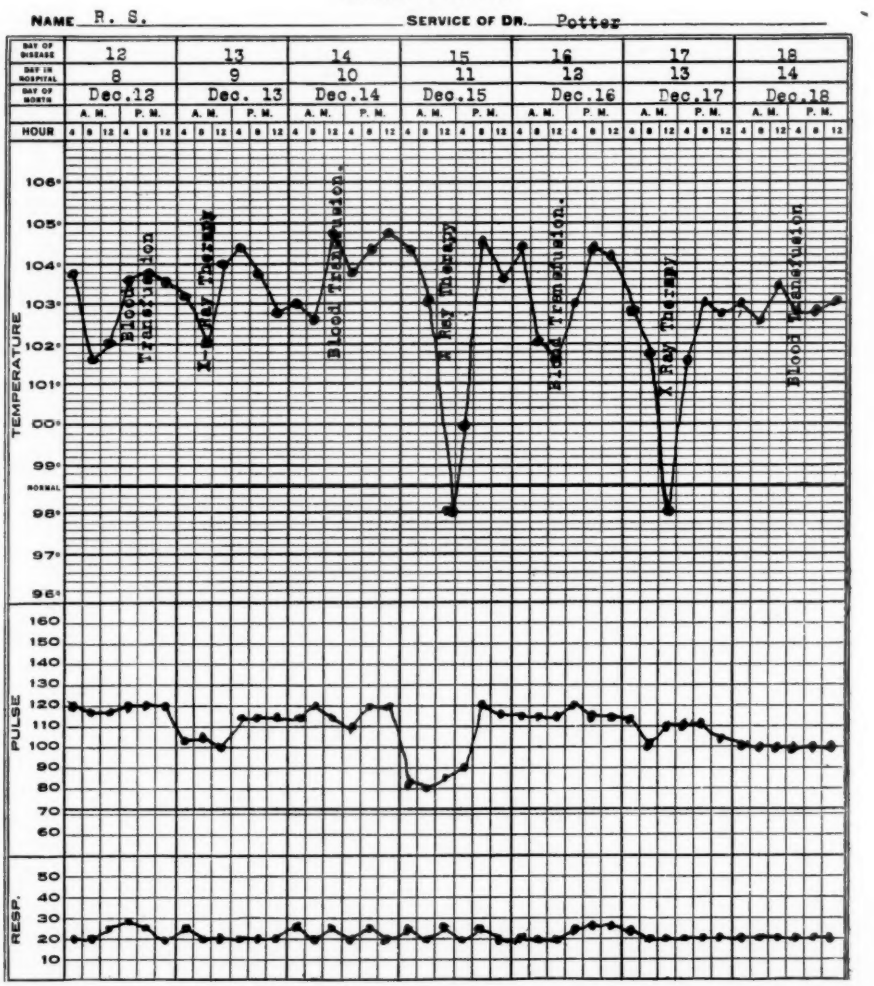

Table I.

Chest and heart negative.

Abdomen soft and flaccid; no tenderness, masses or rigidity elicited.

There was a marked swelling in the right inguinal region which was tender to pressure and red and soft at its center. Extremities showed a small infected area just below the right knee. There was no free pus apparent. Otherwise the extremities were negative.

Reflexes showed no deviation from normal.

Progress of Case:—Shortly after admission the patient was taken to the operating room and, under ethyl anaesthesia, an incision was made over the inguinal swelling. The tissue just under the skin was dark and necrotic in appearance. No free pus was encountered. A gland was removed for biopsy. The wound was packed with iodoform gauze and the corners closed with Michel clips, the center being left open for drainage.

The following day the total count had dropped to 6,200, as shown in the laboratory reports, and the red count showed a marked anemia. Donors were matched by direct matching and 500 c.c. of citrated blood given by the indirect gravity method. The following day half an erythema dose of X-ray was given over the chest and arms. 500 c.c. of citrated blood were given on the 8th, 10th, and 12th. The X-ray therapy was repeated on the 9th and 11th.

On December 11th, six days after admission to the hospital, small ulcerations appeared on the gums, typical of those seen in agranulocytic angina. There also was a large area of herpes involving the lower lip. Six centigrams of neoarsphenamine dissolved in one ounce of glycerine was used to paint the ulcerated gums.

The edges of the wound of operation had become black and necrotic, and the tissue in the wound itself was bloodless and dry.

On December 12th, seven days after admission, the patient complained of earache in the right ear. Upon examination the drum was bulging, and on the drum itself was a bleb filled with blood. The drum was incised and a sero-sanguineous fluid escaped, relief from the pain ensuing. Two days later a loud blowing systolic murmur was heard over the mitral area. The total count at this time was 800 white cells per cu. m.m. with 4 per cent polys. Transfusions were repeated on the 12th and 14th of December and X-ray therapy on the 13th and 15th, the femora being irradiated with the same dose as was used above. On December 15th, ten days after admission, the left ear became painful, and the same picture presented itself upon examination. The drum was opened, with relief of pain. Both ears discharged copiously.

Five hundred c.c. of blood were given by transfusion on the 16th and 18th, respectively. X-ray therapy was repeated on the 15th and 17th, and at this time a phenomenon of drop in temperature was noted, following which the blood picture began to improve. The chart for the week of December 12th appears as Table I. On December 15th the patient was taken to the X-ray room with a temperature of 103, and, upon return after irradiation of the chest and arms, the temperature was 98. The pulse dropped from 120 to 80. The patient did not appear to be shocked. The temperature soon returned to its former level and in eight hours was 104.6. The next morning the total white count had increased slightly. On December 17th, twelve days after admission, the X-ray therapy was repeated with a similar reaction, the temperature dropping from 102 to 98. The pulse did not change after this treatment. No effect on the patient's general condition was noted. The following eight hours found the temperature returning to 103. The next morning the total count had started to climb, reaching 1,250 white cells per cu. m.m. The granulocytes had increased from 16 per cent at the time of the first reaction to 60 per cent after the second reaction. From this time on, the white count increased at the rate of about 400 cells each twenty-four hours until, on December 28th, the count was 7,216 cells per cu. m.m., with 79 per cent polys.

On December 11th and 13th, respectively, 10 c.c. of leucocyte extract were given intramuscularly.

The patient was given one-half ounce of liver extract (Valentine) each four hours from the first day. This was supplemented with Blaud's pills three times a day. The red count responded well to this therapy.

By December 19th the angina had disappeared and the wound in the inguinal region began to soften and slough. The herpetic scab on the under lip separated and was removed on December 27th. The heart murmur disappeared. The ears continued to drain, but less freely.

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The patient was sitting up in a wheel chair on December 27th, twenty-two days after his admission to the hospital. His blood count at this time was 6,424 white cells per cu. m. m., 77 per cent polys., 19 per cent small lymphocytes, 3 per cent large lymphocytes, 4,100,000 red cells, and 80 per cent haemoglobin.

From December 28th to January 1st the patient continued to improve, the temperature, pulse and respiration remaining at normal.

The patient complained of pain in the left chest on December 29th, but physical examination revealed the chest to be clear and the pain was not associated with respiration. When the patient sat up the pain disappeared. On January 1, 1931, the patient was free from this pain, and felt as well as he had ever felt. The ears continued to drain a slight amount of purulent material. The inguinal wound had granulated and looked clean and healthy. The blood picture had apparently reached its normal level at 6,800, with 74 per cent polys., and had been at around that figure for over a week.

On January 4, 1931, the patient was discharged from the hospital with the laboratory and clinical evidences of recovery. The blood count on the day of discharge was 4,180,000 red cells, 80 per cent haemoglobin, 7,680 white cells, with 73 per cent polys., 20 per cent small lymphocytes, 6 per cent large lymphocytes, and 1 per cent eosinophils. Clinically, the patient was in good shape. He was walking unaided, the ear discharge had ceased, and the wound was granulating even with the skin.

In addition to the transfusions, X-ray therapy, and leukocyte extract, liver extract (Valentine) and Blaud's pills were used to combat the secondary anemia.

Pathological Report on Excised Gland

The tissue is a gland about one inch in length and one-half inch in diameter. It is soft and necrotic. Microscopical section of the tissue shows it to be crowded with endothelial cells. There is practically no stroma in the center of the section and that at the periphery is infiltrated with endothelial cells. There are many large cells with two or three nuclei. There are scattered endothelial giant cells answering to the description of those found and described by Dorothy Reed. The endothelial cells seem to run in islands. No eosinophils are seen.

Pathological Diagnosis: — Hyperplastic adenitis.

Blood Cultures:

12/13/30 Negative.

12/15/30 Negative.

Culture for ear grew the pneumococcus.

Urinalysis:—December 5, 1930—Clear, amber, specific gravity 1.018, acid. Albumin—faint trace. Sugar—negative. Few hyaline and granular casts.

December 6, 1930—Same as above.

Laboratory Reports

Table II.

Date	R. B. C.	W. B. C.	Hg.	P.	L. L.	S. L.
12/ 5/30	--------	9,600	--	3	7	89
12/ 6/30	2,690,000	6,200	50	3	12	85
12/ 7/30	3,160,000	1,350	55	2	8	90
12/ 8/30	2,490,000	866	48	4	2	94
12/ 9/30	2,920,000	825	57	1	6	93
12/10/30	2,890,000	776	50	5	3	91
12/11/30	2,930,000	1,850	52	11	7	82
4 P. M.	--------	2,400	--	10	6	78
12/12/30	3,050,000	800	50	11	6	82
12/13/30	3,360,000	418	62	4	4	88
12/14/30	3,140,000	466	60	16	6	78
12/15/30	3,330,000	425	57	32	4	64
12/16/30	3,080,000	550	56	32	4	64
12/17/30	3,380,000	1,083	60	48	2	50
12/18/30	3,510,000	1,250	66	60	5	35
12/19/30	3,840,000	1,666	69	62	4	34
12/20/30	4,000,000	2,518	75	65	8	27
12/21/30	4,120,000	3,000	79	63	4	33
12/22/30	3,450,000	2,700	65	62	16	22
P. M.	3,490,000	3,000	67	64	19	17
12/23/30	3,930,000	3,666	70	61	12	27
12/24/30	4,050,000	4,400	80	65	13	22
12/25/30	4,040,000	4,800	79	69	4	27
12/26/30	4,100,000	5,200	80	69	5	26
12/27/30	4,070,000	6,421	80	77	3	19
12/28/30	4,150,000	7,216	82	77	7	16
12/29/30	4,240,000	6,666	82	72	3	25
12/30/30	4,180,000	6,718	80	70	8	22
12/31/30	4,100,000	6,700	80	71	5	24
1/ 1/31	4,120,000	6,800	81	74	8	17
1/ 2/31	4,180,000	6,900	80	74	8	18
1/ 3/31	--------	6,200	--	68	6	24
1/ 4/31	4,180,000	7,680	80	73	6	20

Detailed Account of Blood Study

From December 5, 1930, to December 17, 1930, the blood picture presented many abnormal and early forms. The early counts during this period exhibited many nucleated red cells. The white cells, mainly lymphocytes at this time, presented some of the reticulation of the nucleus similar to that seen with supravital staining in infectious mononucleosis. The few granulocytes seen were early forms taking deep stains immediately upon contact with the reagents. From December 17th, the cells showed a beginning return to normal. The nucleated reds disappeared. The granulocytes increased in number and resumed the normal

staining characteristics ordinarily seen. The lymphocytes lost the reticulation of the nuclei and decreased in number. The change in blood picture seemed to begin following the marked antipyretic reaction after X-ray, which is described in detail elsewhere in this paper.

The patient was seen daily at home for a week and then came to the office each day. Blood counts taken every other day were normal each time.

On January 18, 1931, I was called to see the patient in the late afternoon. He was complaining of agonizing pain in his wrists and elbows, and the area over these regions was tender to pressure. The blood picture the day before had been normal. I took blood, however, for a count on this visit, and found a total count of 21,000 white cells. The differential count revealed 50 per cent polys., 32 per cent small lymphs., 9 per cent large lymphs., 7 per cent eosin, and 4 per cent myelocytes. The temperature at this time was 101.4. The patient was sent to the hospital the same night.

Physical examination on this admission was as follows: Head and neck—cheeks puffed and red; sclera—injected; tongue—coated; glands—slight general adenopathy; chest—lungs—clear; heart—negative; abdomen—liver 3 cm. below costal margin, borders smooth; spleen—enlarged to 3 cm. above umbilicus; inguinal wound healed; extremities—three haemorrhagic spots over left tibia.

Progress of Case:—The temperature ranged from 101.4 on admission to 102.6—the highest level it reached. The pulse ranged from 100 to 160. The respirations ranged from 20 to over 50.

On January 20th, the spleen had increased in size to 1 cm. below the umbilicus. On January 21st, a macular rash appeared over the entire body and face. On January 27th it was noted that "Pain has continued in wrists and elbows since admission, and is worse today."

On January 30th, pain shifted to fingers of both hands. Rales of a begining pneumonia were present in both bases February 3rd, and the alae nasi were dilated. Respirations became more labored February 4th, and patient died at 10:15 A. M.

The skin was covered with petechial haemorrhages at the time of death, and the spleen was occupying the entire left abdomen and pelvis. Table III presents the blood pictures of this stage.

Table III

LABORATORY REPORT OF SECOND STAGE

Date	Red	Whites	Polys	S. L.	L. L.	Eosin.	Myelo.
1/18/31	--------	41,200	53	31	9	7	4
1/19/31—							
A. M.	--------	39,750	25	40	16	7	12
P. M.	4,570,000	58,300	25	43	22	4	6
1/20/31	--------	37,700	39	33	15	10	3
1/21/31	--------	41,000	36	30	17	0	17
1/22/31	--------	48,400	26	45	18	1	10
1/23/31	--------	61,200	14	46	16	0	24
1/24/31	--------	75,000	12	61	12	6	9
1/25/31	--------	77,000	11	43	22	1	23
1/26/31	--------	37,000	8	62	17	0	13
1/27/31	--------	36,900	21	56	16	7	0
1/28/31	--------	58,600	16	57	20	0	12
1/29/31	--------	74,400	9	59	20	0	12
1/30/31	--------	59,800	7	65	18	0	10
1/31/31	--------	41,800	8	70	14	0	8
2/ 1/31	--------	46,300	5	55	27	0	3
2/ 2/31	--------	77,000	10	62	21	0	7
2/ 3/31	--------	75,800	2	73	21	0	4

COMMENT ON CASE

This case is of interest because in its first stage the picture was that of agranulocytosis and the author was convinced that this was the condition under observation. When the case left the hospital the writer believed he had witnessed one of the rare recoveries from this dread disease. This belief was short lived. The leukemia ensued in two weeks and terminated in death.

The leukemia was myeloid in type even though the lymphocytes were in greatest percentage. The presence of fairly large numbers of myelocytes and the eosinophilia, I believe, establishes that point. The total count did not reach the tremendous numbers sometimes seen, but was high enough to be in the class of the leukemias.

The case is of further interest because of the reaction to X-ray therapy in the first stage.

70 *Thirty-Third Street.*

ON THE USE OF INSTRUMENTS OF PRECISION IN THE DIAGNOSIS OF HEART DISEASE.*

JAMES W. HUNTER, JR., M. A., M. D., F. A. C. P., Norfolk, Va.

In the opening chapter of his *magnum opus* on the "Facts on the Heart," Richard Cabot[1] speaks as follows: "The first and in some ways the most important point of all is to know that

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most 'heart disease' is imaginary," and he adds a footnote in the summary of the book: "Most diagnoses of heart disease, whether made by physicians or suspected by the patient, are in my experience wrong." Such, indeed, is the indictment made by a famous diagnostician, a "foeman worthy of his steel." That this indictment is surprising, no one will deny; that it contains a deal of truth, we must all admit.

We must, first of all, admit an ignorance of the heart. In spite of our boasted progress and education, few of the laity know the heart save as the seat of the passions. We pray for an "understanding heart," for delivery from "hardness of heart," for a "loving heart," etc. Few, indeed, recognize that the heart is an organ of circulation; that it is owing to its continuous functioning that the blood nourishes the tissues, so that we may live and thrive. Just now it is quite fashionable to have "heart trouble," and, just as charity covers a multitude of sins, so supposed heart disease relieves us of performing many tasks that we do not desire. Most people now have a vague idea that the heart lies somewhere in the lower left chest; but this has been only in recent years. In spite of the long continued disemboweling of corpses as a part of the process of embalming, as practiced by the Egyptians and extending almost to the present day in the case of kings and popes, and of the wish of great warriors, statesmen and cardinals that their hearts repose at places distinctly separate from the tombs that contained their remains, the idea arose that the heart was on the right side. Thus, when we observe the wax figures of the Christ with the spear-wound on the right side, which repose on silken pillows in glass boxes as the lower portions of altars in many churches, we are prepared for almost any anatomical absurdity. But we are more than astonished when we see this same error in that greatest of all sculptures of the Christ, the marble crucifix by Cellini at the Escorial.

And this ignorance also applies to the medical man. If one will search the history of medicine, he will observe that many and strange doctrines have been taught regarding the circulation of the blood, of the arteries and of the veins. It is only since the time of Harvey that we have entertained a clear conception of the subject. It is only the man who is constantly associated with the anatomy of the human body (and especially of the heart) that can define its true relations and borders. After leaving college we promptly forget what anatomy we have learned; likewise, with the physiology and pathology of the organ. Now, as the clinician must serve as a clearing-house not only for the truths of anatomy, physiology and pathology, but also for the symptomatology of his patient, he must be acquainted with all of the facts. Cabot shines by no internal light. He freely tells us that it is only by the co-operation of his confreres that his work has been made possible.

To this admission of ignorance both upon the part of the laity and the profession we must add an insufficient experience with the art of physical diagnosis. When Auenbrugger announced his method of percussion, he gave to the profession a method of examination that has endured. Yet every examiner has his own distinctive method. Some percuss with the hand, some with the hammer, some with the plexímeter—some deeply, some lightly. Some vary their technique to suit the case. Personal equation also enters in. So that the percussion of the heart represents a degree of skill not easily attainable and it is doubtful whether any two men would percuss exactly the same lines, if they were given the same patient to examine. Frankly, I must admit that I know only one man who I think can percuss a heart. Then, too, Laennec's studies opened up another series of discussion when he gave to the prefession the art of auscultation. Few of us have perfect hearing. Few of us can correctly interpret all of the variations of pitch and volume and the other characteristics of the note, so beautifully discussed by musicians; few of us can translate them into the underlying physiology or pathology.

But, to my mind, this fault is not due so much to the individual as to the inherent difficulty of the subject. There is a certain inherent difficulty in percussion. If the heart was closely associated anatomically with the chest-wall, we should get a pure note when we percuss and we should feel that the boundaries as outlined were indeed the true borders of the heart. This, however, is not so. It is only at certain portions of its surface that the heart lies in contact with the chest-wall. It is an organ with many curves. If percussion alone is followed, we must often overlook an aortitis or aneurism, as it is only in the last stages of

the disease that the arch approaches the sternum or chest wall. Upon one occasion I visited a famous night cardiac clinic in New York and was invited to make my choice between the male or female "rheumatics, syphilitics and fibrillators." I chose the male rheumatics. I found a very able and gentlemanly medical man in charge. He showed me a very interesting case and a teleroentgenogram. This he opined was wrong, as his percussion note did not agree with the shadow as observed on the plate. I tried my own hand at percussion. Some how or other my percussion agreed very nearly with the outlines as revealed upon the plate. He tried again and confessed his error.

But, if the percussion note as heard by the ear, or the resonance as felt by the examining finger, is difficult to translate into terms of the size of the heart, what must be the difficulties associated with auscultation? Until a few years ago our clinicians taught (and our textbooks reiterated) that there were two heart sounds, with variations, of course, pre- and post-. Now we are taught that there are three heart sounds. Has Nature in the meanwhile made different hearts or different ears? Is there some super-sense of hearing that is denied to most of us? Moreover, we now recognize that there are many murmurs of no pathological import and that when the diagnosis must rest upon fine gradations of sound we are surely treading upon slippery ground. These gradations of sound and murmurs the clinicians now tell us must be correlated with the physical findings. Thus the relative difficulty of auscultation is at once apparent.

Then, too, an element of haste often appears. We are sometimes so much absorbed by other matters or so fatigued that we do not give the requisite amount of study to the individual patient. "More mistakes are made by not observing than by not knowing" is an observation of Jenner. These words are words of wisdom and worthy to be written in gold. They explain many of the failures in the diagnosis of heart lesions.

And, lastly, we are confronted with a certain amount of conceit. "All fatal faults in art," says Ruskin, "that might have been otherwise good, arise from one or another of these three things: either from the pretence to feel what we do not; the indolence in exercises necessary to obtain the power of expressing the truth; or the presumptuous insistence upon, and indulgence in, our own powers and delights, and with no care or wish that they should be useful to other people, so only they be admired by them." While, presumably, these words were written in regard to art as we know it in painting and sculpture, they apply with equal force to the art of the practice of medicine. We are all familiar with the clinician who will brook no interference with his diagnosis. We are equally familiar with the loquacious surgeon who operates in a large amphitheatre,—

"The applause of listening studcnts to command."

I think that it will readily be admitted that the dawn of civilization began with the use of standards of measurement. The Book of Genesis records that even in Creation the day was divided into the morning and the evening. Later there arose the use of a calendar and the lives of the patriarchs are recorded in units of time. Likewise, there was an arbitrary measurement of length. The dimensions of the ark of Noah are given in cubits. Nor will it be denied that the use of instruments of observation ushered in the beginning of scientific accuracy. Probably the first attempt to ascertain the length of the time of the Sun's journey around the ecliptic began with the Egyptians. Whatever the rites or mysteries as practiced in the temples, the use of the gnomon is perhaps the first attempt to determine the meaning of the solar year.

From the arbitrary division of the day into the morning and the evening, the attempt to measure the solar year by the use of the length of the shadow as thrown by the gnomon and the adoption of the cubit as the unit of dimension, what an epoch to the use of the pendulum, the transit instrument and the micrometer! What an evolution we now enjoy with our accurate clocks and chronometers, our balances, our metric system and the other methods of scientific measurement! Likewise, what a difference in the measurement of the sensation of heat by the thermometer, our steam pressure gauges, our ammeters and the thousand and one other aids to measurement and accurate record! But it must be noted that all these are instruments, in which the sight is utilized. The expansion of mercury is measured in length as a determination of the degree of heat. The pressure of steam is registered upon a gauge, the quantity or intensity of the electric current upon a dial. These instruments, as we have said, are calibrated into units, which are

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seen. Further, we must confess that, while to the accurate balance is due the foundation of modern chemistry, the chemical reactions are reactions, which are interpreted by the eye. Color, cloudiness, precipitation, character of crystals, etc., these are changes that must be seen, not heard, nor smelled, nor felt.

Further argument would seem unnecessary to show that of all of our senses sight is the one upon which we must depend, and, conversely, that of all of our senses sight is the most perfect. The use of instruments of precision and the accurate record of what is observed has, so far as is humanly possible, eliminated the problem of personal equation. Such, indeed, is the testimony of the sciences. With art, however, the personal equation largely enters. But, even in music, we have the reduction of the note to a scale and a recording in symbols that are interpreted by the eye. Some of the greatest of our musical compositions are the work of a man who had become deaf. But what of the senses of taste and feeling? Alas, these are personal relations! And so it is also of smell. It is only by the cultivation of years that the exquisite sense of taste necessary to grade tea and wines may be acquired or the exquisite smell so necessary in the blending of perfume. I think that I may indeed make this differentiation. Science depends upon the sense of sight and evades the personal equation; art is dependent upon the other senses and cultivates the personal equation.

And so it is with the science and art of medicine. The truths of anatomy must be acquired by the cultivation of the sight. No blind man may appreciate its many details. Similarly with the fundamental truths of chemistry, physiology, pathology and materia medica. While theory enters, and must necessarily do so, it is upon observations made with the test tube and other instruments of precision that we must depend in the final analysis. All of the clinical reactions, as we have said above, as well as the chemical ones, color, precipitation, cloudiness, these depend solely upon the sight. Instruments of precision are not wanting. The accurate watch to test the pulse, the clinical thermometer, the microscope, the sphygmomanometer, the roentgen rays. When, however, we view medicine as an art, we must depend upon methods other than those connected with or interpreted by the eye—hence percussion, auscultation, smelling, feeling. All of these have a varying personal equation and recorded phenomena must necessarily vary according to the examiner. Fortunately, the use of instruments of precision is growing all of the time. Unfortunately, there is always the appeal that medicine is becoming too mechanical. But, if a mechanical contrivance will do better work than the man, who has had years of experience, why not let him devote himself to something beyond the capacity of the machine? Once upon a time the urine in hospitals was examined entirely by interns; they also gave anaesthetics. Now it is recognized that this work may be done equally well by the trained nurse. The educated man can devote himself to something better and higher.

There is a certain inherent ultra-conservatism that still clings to many of our medical men. They seem to think that the adoption of an instrument of precision will deprive them of some tangible asset. At the meeting of the Medical Society of Virginia in 1903, the first that I attended after my graduation, Dr. Henry Wireman Cook, of Richmond, presented a paper upon the accurate estimation of blood pressure and a description of his own modification of the Riva-Rocci instrument. In the discussion, which followed, it was almost the unanimous opinion that the instrument described by Dr. Cook was an interesting laboratory toy, but that the real estimate of blood pressure lay in the educated touch. In the very early days of roentgenology a disgusted roentgenologist complained that many of the orthopedists would have none of the roentgen examination in regard to broken bones; that seemingly they were indifferent as to the results of their own reductions. Only a little later our State Medical Society held a symposium on tuberculosis. The roentgen examination of the chest was declared of no value. It is only fair to the author of the paper, however, to note that this was before the days of the studies of Dunham and Cole. But instruments of precision will prosper and develop. Dr. William J. Mayo addressed the meeting of the American Roentgen Ray Society held at Rochester and Minneapolis in 1920. He thanked the members for what they had done, declaring that sight was the most perfect of the senses, and referred with much feeling to the "romance of the chest."

Just why this ultra-conservatism should exist in the mind of the cardiologist in regard to

the adoption of the use of the roentgen ray, I am unable to say. It was only in 1929, at the meeting of the American Roentgen Ray Society in New York, that a distinguished cardiologist appeared as one of the speakers in a symposium on the roentgen diagnosis of heart lesions and declared that, while he expected to purchase a roentgen apparatus for his own use, the work of the roentgenologists had been of no special value to him. Again, time and common sense have compelled a change of opinion. It is interesting to note that in the latest work on cardiology which has appeared (I refer to that by Paul D. White), the inherent difficulties of percussion are recognized and a large portion of the book is devoted to the roentgenology of the heart.

As White's book represents the latest and best that is known and thought upon the subject of heart disease, a careful analysis of his chapter upon the roentgen examination will not be out of place. He has become, as it were, converted to the Continental or Viennese school of roentgenology. Hence he employs the fluoroscope and the orthodiagram. The tracing upon the paper is carefully analyzed. Of this method much can well be said. It cultivates the powers of observation; it preserves and correctly records certain of the landmarks of the heart; it is inexpensive, though time consuming. It, however, intensifies all of the faults of personal equation. Frankly, I must tell you that in my own opinion the American roentgenologists will not adopt it. They will continue to use the fluoroscope and to examine the patient at all angles; but the perfection of the intensifying screen, the tremendous increase in the capacity of the transformers and tubes and the almost complete elimination of motion will produce a permanent record free from mechanical errors, distortion and personal equation. The exceedingly quick time, in which the roentgenogram is made from a distance of two metres or more, eliminates the pulsation of the organ and the diffraction incident to the tube at a nearer distance.

I am frankly cognizant that of the three methods of heart examination, viz., the clinical, the electro-cardiographic and the roentgen, the roentgen method is of the least value. Yet I would make a plea for a roentgen examination in every case that is at all suspicious. The shape, size and position of the heart, the great vessels, the arch and the descending aorta are clearly shown. These can be checked against clinical examination. An enlargement of the heart to the right together with an unusual enlargement to the left suggests a mitral regurgitation, or, if associated with a "stair step" on the left, a mitral stenosis; an aneurism of the left ventricle must not be overlooked. Similarly, a very great enlargement of the heart to the left may spell aortic disease. We must also consider the width of the arch and of the descending aorta. In other words, the teleroentgenogram and the fluoroscopic examination should be used to check and elucidate as many equivocal points as possible.

The clinician has always felt that the educated touch was most essential in the examination of the pulse. Careful observation has developed a number of interesting facts. But, even as the sphygmomanometer has been routinely adopted as the measure for blood pressure, so some have felt that there was something eminently to be desired that the palpation of the radial artery did not reveal. The sphygmograph did not entirely satisfy. When, however, Mackenzie added the simultaneous tracing of the jugular pulse, he at once opened up a new world. He was able to establish as facts many things that he had long suspected. A little later Einthoven gave us the electrocardiograph. Here we have a machine that records the movement and mechanism of the heart beat in a graphic way. It is a great improvement upon the polygraph of Mackenzie, for, while that instrument records both the venous and arterial pulses, the interpretation is not always an easy one. With the electrocardiograph, on the other hand, we have a tracing that is clear, and it has opened up a greater and more useful method for the accurate study of the cardiac arrhythmias.

It may be stated that the electrocardiographic tracing will serve to bring to our attention many things that might have been overlooked in the usual clinical observation, and thus make us doubly observant. Thus the so-called left ventricular preponderance will at once suggest that we pay particular attention to the examination of the aortic valve. Similarly, a right ventricular preponderance suggests some trouble with the mitral valve. A recent letter from the medical director of one of our largest life insurance companies assured me that he could not pass as a first-class risk an applicant on account of a right ven-

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tricular preponderance, although the teleroentgenogram was distinctly normal and no murmur could be heard at the apex. This, perhaps, is going a little too far, but it serves to guide us in the right way. Similarly, the reversal of certain of the waves and the strength of others must serve as a guide to the integrity of the cardiac muscle. The great cardiologists at once seized upon this method of examination, and it is now almost impossible to attend a heart clinic without an exhibition and discussion of the various waves and phases of the electrocardiogram.

To discuss the electrocardiogram in all of its phases will lead me far afield from the purpose of this paper. Suffice it to say that in my own experience it has been an instrument of constant information. I have had the privilege of making the records of many patients. Thus, Mrs. A., whose husband is a medical man, suffered with an arrhythmia, which both were convinced was a heart block. An electrocardiographic tracing showed only a series of extra-systoles. I have also had the opportunity of examining several patients, who have died suddenly. In one the observation of a pulsus alternans told the story a year before the crisis. In another the reversal of the T-wave in the first lead combined with an exceedingly low voltage caused me to render an opinion that coronary disease was present, only to hear a few hours later that the patient had suddenly passed away.

To the instruments of precision, which we have discussed, viz., the blood pressure machine or sphygmomanometer, the roentgen ray, the polygraph and the electrocardiograph, we must add the apparatus used in the determination of the basal metabolic rate. Levine has given us to understand in no uncertain language that there is an intrinsic relation between the thyroid and the heart and that the question of a too rapid heart beat can only be definitely determined by this means. If the basal metabolic rate is normal, we must suspect something else and so postpone indefinitely a thyroidectomy or treatment by the roentgen rays or radium. Nor should we overlook that homely instrument of precision, the tape-measure, nor the more intricate spirometer. The one is used too little, though it serves as a measure of physical fitness; it gives the amount of expansion of the chest and in some degree measures the respiratory quotient. The other guides us to the capacity of the respiration. Both guide us as a measure of the tone of the muscles of respiration and, conversely, those of the heart.

To the instruments of precision, which we have discussed above, the roentgen ray, the sphygmomanometer, the sphygmograph and polygraph, the electrocardiograph, the tape-measure, the spirometer and the determination of the basal metabolic rate, we must add yet another instrument, namely, the stethoscope. From the instruments that appeal to the sight and record observed phenomena in units, we pass to one that depends exclusively upon the sense of hearing. Here, indeed, begins the stumbling block, so to speak, in modern cardiology. The sounds are transmitted either pure or intensified by some form of a diaphragm to our ears, and it depends upon a cultivated sense of hearing that the diagnosis of murmurs is made. It is upon personal contact, long training and a nicety of discrimination that we are forced to depend. We must all learn this for ourselves. The electrical stethoscope, whereby the sounds are transmitted to several listeners, is indeed a boon. The sounds, while somewhat intensified, are usually distinctly heard. But the attempt to record the murmurs or other cardiac sounds upon Victrola or other disks, as in the case of musical notes, is most unsatisfactory; likewise, the attempt so to intensify these sounds by vacuum tubes that they may be broadcast. To say the least, both are failures. Unfortunately, also, no one has been able to translate the note as heard by the ear into a series of recorded symbols and thus differentiate and determine once for all the question of pre- or post-systolic or diastolic mrumurs, third sounds, etc., so that the cultivated ear will always be the medium of interpretation, so far as murmurs or sounds are concerned. No wonder, Mackenzie is often quoted as saying that the stethoscope was an instrument of the devil.

The field of accurate cardiac diagnosis is a large one. Hence I would appeal for a more general use of the instruments of precision and the co-ordination of observed physical symptoms. The teleroentgenogram or fluoroscopic examination will serve to check errors of percussion; the shape and size of the heart as observed upon the screen and plate will tend most distinctly to determine whether the murmur as heard is pathological or not. As a

member of one of our medical advisory boards during the World War, before accepting a commission in the Army, I had the opportunity of listening to many apical systolic murmurs. Under the instructions from Washington there was no choice but to reject such men. A little later we found our error. Subsequently, the rule was adopted by many of the better cardiologists that if there was no history of rheumatism and the heart shadow was normal both to percussion and on the roentgen plate, an apical systolic murmur was of no consequence. To this dictum, however, the late Garnett Nelson strenuously objected. White in his new book begs the question. This I have cited only as one place where we may be led astray. I might continue almost indefinitely. Theoretically it is even possible to have grave valvular disease without any murmur. I would repeat that we must check and re-check ourselves by a co-ordination of the records as determined by instruments of precision and observed symptoms.

But the cynic objects. Would you reduce a man to a system of units? Would you make difficult a thing ordinarily very easy? Would you increase an examination fee from one of pence to one of pounds? Percussion, auscultation, palpation of the pulse, and all of the other methods that the great clinicians have given us, are well tried and have stood the test of time. They are eminently to be relied on. And, more, if they should vary in their results from some of your own units, what is the difference? If the heart is sound, it is sound. And, again, he asks: Of what use is all of this? I have the hearts of my patients examined, but only as a matter of protection to myself. There is a certain appearance, an intuition as it were, by which I know whether my patient will recover from a surgical operation. I use my own discretion and my own common sense. And, then, what will you do? Will you go on drugging your patients with digitalis and digitalis and still more digitalis? And, then, what? Would you deprive the Moon of her glory by disclosing that she shines only by reflected light? Would you reduce man, the noblest of all creatures, or your own intellect, to a system of units and measures?

For my own part, I have no inner light. I have no supersense. I have had to acquire what I know by study, hard knocks and observation. I would check histories and observed clinical phenomena by all means at my disposal, and so, knowing what these things reveal, I would be in a position to give better advice. If instruments of accuracy and precision are used and our observations completely checked, I think that it is only a short time when Cabot will be glad to delete from his work the statement that "most diagnoses of heart disease, whether made by physicians or suspected by the patient, are in my experience wrong."

"To thine own self be true
And it should follow, as the night the day,
Thou cans't not then be false to any man."

THE TEACHING OF PRENATAL AND POSTNATAL CARE.*

GREER BAUGHMAN, M. D., F. A. C. S., Richmond, Va.

It seems to be a rather well established fact that prenatal care intelligently carried out will result in a reduction of the mortality and morbidity among mothers and their newly born babies.

Postnatal care picks up pathology or tendencies in mothers and babies as a result of pregnancy, and labor and puts us in the position to relieve what may be wrong.

Manifestly, departures from the normal must be discovered before they can be corrected. A good way to prevent trouble is to look for it before it looks for you.

Prenatal and postnatal care are wide and inclusive subjects. The examinations, instructions, etc., might easily be so complicated that the average doctor without a well-equipped hospital and laboratory would be helpless to carry them out.

There is, however, a minimum standard, that is in most instances all sufficient, that can be carried out by any doctor who is equipped with an examining table, suitable light and a few instruments.

I will outline what seems to me to be a minimum standard:

1. Taking a history, family, personal and obstetrical.

2. Measuring the pelvis with the pelvimeter, or, with the trained hand, making a careful internal examination of the pelvis associated with a speculum examination.

3. Taking blood for a Wassermann, and

*Read before the sixty-second annual meeting of the Medical Society of Virginia, at Roanoke, Va., October 6-8, 1931.

XUM

taking smears from the cervix and urethra for gonorrhea, when necessary.

4. Physical examination, chest, heart, abdomen, etc., including height and weight.

5. Mapping out the foetus for position, size, fit of the presenting part in the pelvis, and heart sounds. If the foetus is too small to map out, the size of the uterus can be measured.

6. Urinalysis, preferably a catheterized specimen to get rid of the vaginal pus and albumen.

7. Discussing with her the necessity of a dental examination.

8. Giving her advice about food, clothing, bowels, exercise, mental care, care of abdomen, breasts, etc., instructing her about her needs for delivery, and, finally, giving her a prognosis of herself and baby.

9. Giving her literature about her pregnancy, and instructing her when to return.

10. Finally, directing attention to and suggesting treatment for any departure from the normal.

The minimum standard for postnatal care is as follows:

1. History of delivery.

2. Report of her symptoms since delivery.

3. Record of her weight and general physical condition when necessary.

4. Examination of breast and nipples, abdomen, particularly the condition of the skin, muscles, fascia, looking particularly for tendencies to ptosis and movable kidneys.

5. Inspection of the perineum and anus, bimanual examination of the vagina and pelvic contents, note being taken of the descent of the uterus, inflammatory masses, position and size of the uterus, injuries to the coccyx, the ischial spines, the perineum.

6. Speculum examination to see the condition of the vagina and cervix.

7. The examination of the baby is a report of its departure from the normal in its breasts, mouth, abdomen, navel, hernia rings, etc.

8. General instruction to mother about diet, bathing, breast, nursing, exercise, particularly exercises directed to strengthen the abdominal muscles, sexual life, etc.

9. Instruction to return for treatment provided any departure from the normal be discovered.

When we come to study the subject of prenatal and postnatal care from a teaching standpoint, it seems to divide itself into two problems—the need and the technic.

The need should be thoroughly understood by the doctor. If he feels the need, in many instances he feels the need very slightly because he does not put the need into practice. The doctors should be the leaders in this great movement for the conservation of life and health. If they are not willing to lead, then they must follow, because the laity are becoming conversant with the modern trend and will demand better care.

The technic must originate with the doctors, because they are the ones qualified by training to carry out the technic.

Leaving the part played by the nurse out of discussion at this time, there are two very well-defined groups to be taught—the undergraduates, and the graduates in medicine.

The junior medical student at the Medical College of Virginia has completed his courses in anatomy, physiology, bacteriology, biochemistry, pathology, physical diagnosis, pharmacology, principles of surgery, histology and embryology. During this third year he is paralleling his obstetrics with gynecology, medicine, nervous and mental diseases, pediatrics, preventive medicine, X-ray, and carrying on with special pathology and physical diagnosis, for which reason he is pretty well prepared to understand the underlying principles of prenatal and postnatal care.

The theory of prenatal and postnatal care are discussed in the junior year, but the practical application is reached in the senior year, when the student examines and instructs pregnant women in the dispensary. At the same time he is aiding in the delivery of women in the hospital and on the outside service.

We are suffering in the dispensary with a plethora of students. The students who get their obstetrics off in the summer months are better instructed because we have fewer students and are able to give them better instruction. These comprise about a third of the class. The graduates who intern at the Memorial Hospital and have three months of obstetrics are well versed in prenatal and postnatal care because they, during their three months' service, are used as demonstrators in the dispensary under instruction.

The instruction of the graduates, particularly those who graduated several years ago before the instruction in the dispensary was

as efficient as it is today, is even more of a problem.

The graduate has been repeatedly invited to attend the clinic work in the dispensary, but he has seldom availed himself of his opportunities. Probably he knows that the dispensary is crowded; possibly he lacks the time except where post-graduate instruction is really organized. The approach through papers and demonstrations at the Medical Society of Virginia and before the local medical society has been tried and is no doubt helpful. What he really needs is to have someone go directly to him, persuade him of the need, show him how he may in this way not only do good to the patient, but increase his own income, and give him a demonstration to show how easy the examinations are to make. A man cannot become an expert in a few hours, but he can become interested, learn the underlying principles, and make his plans to learn more.

The best way to carry out such a demonstration is to send a practical experienced clinician, who is not practicing and does not intend to practice in the State, with what clerical or nursing assistance he may need, to the doctors of the State who desire it, and to demonstrate upon their patients or upon charity cases of the neighborhood a suitable prenatal and postnatal technic to those doctors who want it.

A joint committee made up of equal representation from the Medical Society of Virginia, the University of Virginia, and the Medical College of Virginia, are working out plans to put such a team in the field.

It is believed that this plan will demonstrate to the doctors the ease with which prenatal and postnatal care may be given, will advertise the need to the laity, and will be the means of adding a considerable sum to the monthly income of the doctors.

The real reason is to reduce the mortality and the morbidity for mothers and babies, and make Virginia not only a good place to die, but a good place to be born.

26 *North Laurel Street.*

TWO UNUSUAL TYPES OF FISTULA—WITH CASE REPORTS.

JULIAN M. HOWE, M. D., Washington, D. C.

These cases are reported owing to their comparative rarity, as few such cases have appeared in the literature of recent years. In those patients giving previous history of difficult labors or gastro-intestinal symptoms, such as fever, nausea and vomiting, abdominal pain followed by urinary symptoms, as frequent burning urination, with abnormal contents of pus, gas and fecal material, should lead us to suspect fistula.

The two cases which came under my observation were:

1. One in which the appendix eroded into the urinary bladder (appendiceal-vesico fistula).

2. One in which the small intestine eroded into the cavity of the uterus (entero-utero fistula).

The symptoms of fistula are varied, and usually the progress of the disease is slow and insidious. These conditions do not occur with great frequency in our day because of the wonderful advancement in surgical skill and diagnosis.

Case Reports

First Patient.—Appendico-vesical Fistula: Foreign bodies are today considered to be an infrequent cause of appendicitis although some years ago seeds and the pits of small fruit were thought to lodge frequently in the appendix and to be responsible for an attack of appendicitis. A survey of the literature (Mitchell, Fowler and Berger) shows that approximately 2 to 3 per cent of all cases of appendicitis are caused by true foreign bodies. Mahoney reports a series of seventy-four cases in which foreign bodies were the cause of appendicitis. In forty of these cases the appendicitis was due to the presence of sharp instruments (pins), and the mortality in thirty-eight was 55.2 per cent. In the majority of these cases the appendicitis occurred in childhood, and no history of swallowing the pin could be obtained.

Keen reports the case of a man aged twenty-four who had suffered from dysuria since the age of seven years. At the onset of the dysuria the family doctor found a pin in the urethra and removed it. The patient stated that he did not insert the pin into the penis, nor did he remember swallowing it. At the age of twenty-three he was thought to have a recto-vesical fistula secondary to the rupture of a prostatic abscess. Two unsuccessful attempts were made to close this fistula. One year later a laparotomy was performed and a long appendix was found, with its distal end incor-

porated into the bladder wall. The appendix was separated from the bladder and removed, and the patient made an uneventful recovery.

Lower and Farrell report a case of a man twenty-six years of age who for several years suffered with bladder irritation and who fell and dislodged a stone in the bladder which when removed from the bladder was found to contain a pin. Later a cystoscopic examination revealed an inflamed bladder and considerable amount of fecal material. A depression near the top suggested a fistula connecting with the bowel. At the time of operation the appendix which was found adherent to the domes of the bladder, was removed and the patient made an uneventful recovery.

A single woman, nineteen years of age, complained of an attack of pain in the right side, and had been having nausea for several days. She had also had difficulty in urination—frequency and burning. Her temperature, pulse and respiration were normal.

Past History: Negative, except one year ago she had an attack of pain in the right side, nausea, vomiting, chills, and fever, which lasted a week. She was sent to the hospital at this time, and, after ten days, her symptoms were relieved. Since then, she has had recurrent attacks, similar, but not sufficiently severe to send her to bed.

With this history in mind, an examination was made which revealed tenderness and rigidity in the right lower quadrant. There was no evidence of pain on percussion over the kidney area posteriorly. Laboratory report showed a leucocytosis of 10,000. Urinary findings revealed quantities of pus and cellular debris. It was thought that she had a surgical abdomen and a laparotomy was advised and accepted.

The operation revealed a tube-like mass of adhesions from the cecum to the fundus of the uterus, completely covered with peritoneum. A dissection of this revealed the appendix to be in close apposition to the right tube and entering the bladder at a point near the right cornua of the uterus. The appendix was removed and the bladder infolded. The abdomen was closed with a drain and the patient made an uneventful recovery.

The pathologist reported that the specimen consisted of a portion of the appendix which was adherent to and communicated with the bladder. At one end a surface was found to be lined by soft, velvety, irregular mucous membrane such as is seen in the bladder. The lumen of the appendix which ran through the rest of the mass, was open through its entirety.

Originally, I believe, this case was one of an appendiceal abscess, which fortunately attached itself to and ruptured into the bladder cavity.

Second Patient. — Entero-Utero Fistula: Several interesting cases have been reported in medical literature. The *American Journal of Obstetrics and Gynecology*, March, 1908, gives a report of a woman who was attended in confinement by a physician who ruptured the uterus with his obstetrical forceps, which caused a portion of the bowel to prolapse into the vagina and a section of this evidently sloughed off resulting in an entero-uterine fistula.

Another case was reported in *Gynecologie*, Paris, February, 1912, following a long, hard labor. The patient had a severe infection which required curettage, followed by intestino-utero, appendicular fistula. In still another paper, published in *Gynecologie*, Paris, February, 1921, it was stated the cecum and appendix became adherent to the uterus following an appendiceal abscess, resulting in an entero-uterine fistula. A case reported in the *Pennsylvania Medical Journal*, April, 1929, was that of a perforation from the small bowel into the uterus.

Communication of a bowel with the uterine cavity is not a common occurrence, and when the communication is not large it renders some difficulty in diagnosis. An X-ray examination of the intestinal tract in some cases demonstrates the fistula. The examination of the vaginal discharge, both macro- and microscopic, is often helpful. The passage of gas by the vagina, local inflammation of the uterus and vagina, which is worse if constipated or at the menstrual period, is sometimes suggestive. Previous history of difficult labor, abdominal operation or a severe illness with considerable abdominal distress, should suggest fistula.

The family history of this case was not remarkable. The personal history showed that the patient had had measles, mumps, typhoid fever and malaria. She had had five children, who are now between the ages of five and fourteen years and are living and well. She had one miscarriage seven years ago. During her last labor, five years ago, instruments were used

with considerable difficulty. Since that time she has been in poor health, complaining of backache, occipital headaches, general nervousness and vaginal discharge. The vaginal discharge was yellow, offensive in odor, and she suffered much more during her menstrual period with pain in the uterus, backache, itching and burning of the vagina, and at times she thought she noticed the passage of gas through the vagina. This condition did not respond to local treatment. Tenosynovitis developed in the right hand and wrist, and it was decided that the infection was of pelvic origin. An operation was recommended and accepted. The diagnosis at that time was chronic salpingitis and endometritis. Upon opening the abdomen many adhesions were encountered. The ileum, about two and one-half feet from its termination in the cecum, was found to be attached to the fundus of the uterus. By dissection, the bowel was separated from the uterus and the opening in the bowel repaired. The uterine opening was closed and the uterus delivered into the abdominal wound. There were cystic changes in both ovaries, and the tubes were inflamed and greatly enlarged. The tubes, ovaries, and the uterus were removed. The recovery was uneventful. The hand improved, and no further evidence of infection has been noted. For two years her general health has been excellent.

Much information could be collected in these types of cases by gastro-intestinal X-ray between the attacks, and cystoscopic examinations during or shortly after the attack often would give valuable information.

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COLORED PHOTOGRAPHY OF THE ANTERIOR SEGMENT OF THE EYE.*

LEROY HYDE, M. D., Washington, D. C.

Recent advances in color photography have paved the way for improved medical illustration. In the past the sketches of an artist were at the best not exact, and the black and white photograph left a great deal to be desired as a means of preserving interesting medical data. Today the relatively simple process of color photography pictures in a wealth of detail and color value nearly any medical specimen which can be photographed. Every lesion of the exposed surfaces of the body, pathological specimens, and microscopic sections are depicted accurately and in their natural colors. As an aid to teaching, as well as a method of illustrating medical talks, its value cannot be questioned. Unfortunately, contact prints cannot now be made from these plates, although photo-engraving methods reproduce these pictures with accuracy. Prints in colors can be made by a method of color separation and synthesis, but with this we have had no experience.

Our interest in photographing the anterior segment of the eye dates from 1929, when Dr. Laurence Redway published an article on the subject. Unaided by technical or other help, Mr. Frank Edmonds, of Washington, has developed the camera with which these pictures were taken. I want to express my deep gratitude to him for making these pictures possible.

Although several processes of color photography are available, we have used but one, the Agfa dye plate. In these plates there is interposed between the glass and the emulsion a fine color screen. When loaded in the camera the emulsion side of the plate is turned away from the lens so that during the exposure light rays pass in order through the glass, color screen, and register on the emulsion. When developed and projected, the light rays passing through the same color screen accurately register the color values of the subject.

Because of this color screen, these plates are only 1/30 as fast as ordinary plates, and therefore require intense light and long exposure. Daylight, the carbon arc, flashlight, or the nitrogen lamp may be used, but for this special work we have found the carbon arc best. Since some lights are richer in certain colors of the spectrum than others, it is necessary to use color filters to intensify the weaker and tone down the stronger colors. With all except the nitrogen lamps such filters are employed. Using 60 volts and 18 amperes from an ordinary commercial circuit of 110 volts direct current, it is possible to develop in excess of 75,000 foot candle power at the arc. By means of a plano-sphere lens the light is conducted to the eye in a nearly parallel beam. This beam is controlled by a camera shutter. With this intense light, exposure has been reduced

*Read before the Virginia Society of Oto-Laryngology and Ophthalmology, at Richmond, May 2, 1931.

to 1/25 of a second and without discomfort to the patient.

After exposure, these plates are developed in total darkness or in a pale green light as they are panchromatic and therefore sensitive to all colors of the spectrum. During the developing process, the negative is reversed to a positive so that when dried and bound with a cover plate is ready for projection. In no part of this process is the plate intensified with solutions of color nor is retouching necessary.

The cost of production, aside from the initial outlay for equipment, is not great. For other photographic work we have used an ordinary plate camera, and the light used has been from two 1,000 Watt nitrogen lamps. Of course, exposure has been much longer, from 10 to 15 seconds, but in this case a short exposure was not essential as the subject could be kept quiet for that period.

Before showing you a picture of the camera, it might be well to give some data about it. It is of the fixed focus type, that is, the lens remains at a fixed distance from the plate, while focusing is accomplished by moving the camera towards or away from the eye. The plate is 137 mm. from the lens and produces a magnification of 1¼. By extending the lens to a distance of 190 mm., an image practically twice the size of the subject is produced. A Tessar anastigmat lens with a working aperture of F 4.5 is used, and is not stopped down for eye work. With this large aperture lens some depth is sacrificed, but the exposure is considerably shortened. A short exposure is obviously necessary in taking pictures of the eye. For other pictures the same lens has been used but stopped down. This has necessitated an extremely long exposure, but has added depth to the picture.

Color photography is not difficult, in fact, it is simpler than the black and white process because each step can be timed accurately. Anyone without photographic experience can, with care, get excellent results. As a great deal of our work has been experimental on normal eyes, the number of pathological plates is limited.

EDITOR'S NOTE.—A number of colored plates were shown.

1801 *Eye Street, Northwest.*

Correspondence

Real Cooperation.

TO THE EDITOR:

Yesterday afternoon I was an invited guest of the Woman's Auxiliary to the Richmond Academy of Medicine at Linwood Hall, the residence of the State President of the Woman's Auxiliary to the Medical Society of Virginia; the President of the local Auxiliary, Mrs. N. Thomas Ennett, presiding, and Dr. Warren F. Draper, State Health Commissioner, the guest speaker of the occasion.

It is of his address that I wish to write, for it showed a confidence in the Medical Profession, as well as a genuine spirit of real cooperation that pleased his audience, and aroused notable enthusiasm. He began by requesting assistance in his preventive health work, and then announced for the first time the new program of cooperation of the State Department of Health with the Medical Profession of the State.

His program, briefly outlined, is that whenever and wherever possible, his medical and nursing Staffs, especially in threatened epidemics, will do the preparatory work of educational propaganda, assemble the clinical material, inform the local physicians, and leave to them the medical treatment, which shall be charged for at a rate to be agreed upon among themselves. In sections where there may be no County Health Nurses, he proposes to supply temporary nursing attendance, and apply all preventive measures for the protection of the public, thus definitely segregating the particular provinces of preventive and curative medicine, and putting the duties and responsibilities where they rightfully belong. In other mass clinical work, such as Tonsillar Clinics, etc., he expects to follow the same program, and hopes that the active practitioners, in addition to their usual medical work, will still continue personally to practice and teach preventive methods as needed.

He informed the Auxiliary that he had already initiated this program in a threatened epidemic of diphtheria in Danville, and that it was receiving the endorsement and cooperation of local physicians and health authorities. This program is not a new one in anticipation to the many physicians who have patiently waited and hoped for such an announcement from public health authorities; but it will be new, startlingly new in its application; in

truth, it is a "blessed dream come true" at last. It is an opportunity, and more! It is a challenge to our profession that must be met in a cordial spirit and with a helpful hand, and without hindrance to the public health, or hurt to the public weal. This is an open, face-to-face offer to share equal and just responsibility, and it is confidently believed that the physicians of our State will worthily meet the added responsibility, for they were the original guardians of public health, and advised and practiced preventive methods, until such measures required police authority; but when these were demanded, they withdrew, but have always continued to practice and advise personal prevention and physical hygiene, and now, Mental Hygiene.

Dr. Draper concluded by saying, if his present attempts were well received, and successful results obtained, the present program would be enlarged and continued. He said he would bring this matter before the Council of the State Society at its mid-winter meeting. He spoke in euthusiasm, and with genuine interest, and it is now left to us practitioners, to make such an experiment a continuing reality to the benefit of all concerned, and to the lasting honor of our profession. Such helpful cooperation and coordination of Governmental and private efforts, if universally followed, would remove the phobias of State Medicine, and even decrease National encroachments upon the private practice and professional privileges of physicians.

We believe that this frank and catholic spirit of cooperation and just recognition of a correct principle, will be received in the spirit of justice in which it is offered, and will greatly and quickly advance the aims and ends of the profession we serve, and lovingly practice for others.

Long ago, the great Maudsley, said: "There are advantages always in recognizing a just principle; for, notwithstanding difficulties, it slowly modifies feelings and ideas, acts as a solvent of prejudices, and tends by hardly perceptible degrees to its realization in action."

At the recent Annual Meeting of the State Society at Roanoke, an initial and similar spirit of cooperation as an Association was shown, and now it only remains for us as individuals, to do as Maudsley advised, and to rationalize our fond hopes into satisfactory "realization-in-action"—and, shall we?

J. Allison Hodges, M. D.

Richmond, Virginia,
January 9, 1932.

Physicians Requested to Recommend Midwives.

The midwife problem in Virginia and other southern states is one of the most difficult to which to find a solution. A tentative plan has been worked out by Dr. W. A. Plecker, State Registrar, and his co-workers, as outlined in a letter just sent to Local Registrars, copy of which is given below.

To Local Registrars of Virginia:

There seems to be a feeling amongst a few of the physicians of the State that our system of granting permits to new midwives is too lax and that many now have permits who should not have them.

We realize the correctness of this view, but do not believe it wise to attempt to take the permits from those who already have them, except when they defy authority by making inside examinations, thus subjecting women to great danger of contracting childbed fever from the dirt and disease germs that cling to their improperly cleansed hands and under their finger-nails, and when they disregard the other rules on the back of their permits. The fear is that if forbidden to practice, they will continue to answer calls, perhaps without pay, and evade detection by not reporting the births. They would also not ask for nor use drops in the eyes of the child within five or ten minutes after birth, thus making it liable to infection and resulting blindness.

The case is different, however, with new applicants and we can gradually raise the standard of requirement.

After conference between committees from the Medical Society of Virginia and the State Department of Health, it has been decided to instruct local registrars to in the future grant no more permits except to those who are recommended in writing by one, and preferably by two or more physicians who have had them as assistants in confinements, and who have thus shown them how to manage simple cases. The physicians should also vouch for the character of the applicants, and their trustworthiness, cleanliness, and probable obedience of the law and the rules on the permit.

I am, therefore, informing you that hereafter no new midwife permits are to be granted except upon the written recommendation of at least one doctor. Midwife permits are under no circumstances to be granted to men, as has been done in several instances. The doctor's recommendation is to be clipped or

pinned to the pledge card and sent to the Bureau of Vital Statistics with the next report, or by letter sooner if desired. Eye drops and blank birth certificates will be sent them as soon as the card and recommendation are received. You will also urge upon them the importance of practicing according to the requirements.

If there is no doctor to recommend a woman, the local registrar may describe her qualifications to the State Registrar, who can instruct as to the permit.

W. A. Plecker, M. D.,
State Registrar.

January, 1932.

Woman's Auxiliary, to the Medical Society of Va.

President—*Mrs. J. Allison Hodges*, 5511 Cary Street Road, Richmond.
President-Elect—*Mrs. W. P. McDowell*, Larchmont, Norfolk.
Secretary—*Mrs. James K. Hall*, 3011 Seminary Avenue, Richmond.
Treasurer—*Mrs. Reuben F. Simms*, 2034 Park Avenue, Richmond.

Special Richmond Auxiliary Meeting.

On January 8th, upon invitation of Mrs. J. Allison Hodges, President of the State Society Medical Auxiliary, the members of the Richmond Auxiliary to the Richmond Academy of Medicine met at Linwood Hall in special session for mapping out the work for the New Year.

Mrs. N. Thomas Ennett, President of the Richmond Academy Auxiliary, presided, and the State President first made some special announcements, and the City President followed with a review of the work of the year, mentioning the special work of the members of her Auxiliary in its service to children at the Dooley Hospital, and also in furnishing lunches to school children in the city, and efforts to facilitate the medical examinations of pre-school children.

Miss Ellen Smith, of the State Department of Health, spoke of the work done among preschool children, and told of the financial saving to the State by having proper examination and segregation of these children, and the special advantages accruing to them in their future education.

Mrs. W. F. Drewry spoke on Public Relations, and stressed the fact that the Auxiliary members, by their membership in other Societies, could render a great service by interesting their non-medical organizations in topics that might arise concerning general matters of Health Education and Public Welfare.

Mrs. O. C. Brunk, Chairman of the Committee on *Hygeia* Circulation, made an encouraging report.

By invitation of Mrs. Hodges, Dr. Warren F. Draper, State Health Commissioner, was present, and gave a most stimulating address, pointing out especially how the members of the Auxiliary could be of benefit to his Department and the Medical Profession, generally. He also outlined to them for the first time his program for immunization, care of infectious diseases, etc., which he has just initiated in Virginia, whereby his Department will cooperate fully with the members of the Medical Profession, generally and locally, in preventive measures; the physicians of his Staff, and State and County nurses doing the educational and propaganda work of preparation, especially in any threatened epidemic, and the local physicians doing the curative work, and the Doctors deciding for themselves upon the medical fees to be charged for the duties performed. He emphasized especially the fact that this was to be the standing rule of his Department, except in exceptional cases, where physicians or nurses were not at hand to provide the necessary treatment. This program announcing such full and hearty cooperation with the physicians of the State, and such a clear statement of the particular provinces of both preventive and curative medicine, was enthusiastically received by the members. He stated that already he had put this program into effect in a threatened epidemic of diphtheria in Danville, and hoped that it would be the forerunner of many such similar movements in this and other states.

Following this address, Mrs. Hodges presented Dr. Stuart McGuire, Chairman of the Building Committee of the Library of the Richmond Academy of Medicine, and he invited the cooperation and asked the assistance of the members in furnishing the two lounge rooms in the new library for the Academy that is now under construction. This request was

received most favorably, and Mrs. Ennett, President of the local Auxiliary, stated that earlier in the year, by request of the members of the local Auxiliary, she had asked if its members could be of service in this new undertaking, and she now believed from what had been said that it was a movement in which they would all join most cordially, for they wished to have a regular meeting place and felt they were willing to assist in any way possible.

This meeting, which was really a "get-together" meeting for the New Year, was very inspirational, and it is believed that the Richmond Chapter is more thoroughly aroused than ever to join in aiding the medical profession in its great work of raising the standard of health in Virginia.

Auxiliary Plans Card Party.

The Woman's Auxiliary to the Norfolk County Medical Society sponsored one of the group of card parties held simultaneously in Norfolk on January the 20th, afternoon and night, for the benefit of the Norfolk Museum of Arts and Sciences.

At a meeting early in January, the Auxiliary also discussed plans for a card party and dance which it proposes to hold after Easter to raise money for a fund for special charitable work.

Mrs. Southgate Leigh, delegate to the National Woman's Auxiliary, at this time gave a report on the convention which was held at the time of the American Medical Association last June.

Mrs. Lewis Berlin announced that toys were distributed among white and colored children in the hospital wards at Christmas time, and Mrs. Starke Sutton reported that magazines were distributed among the patients in the local hospital wards and at the United States Public Health Service Hospital.

A Message from our National President, Mrs. Arthur B. McGlothlan.

DEAR AUXILIARY MEMBERS:

As we cross the threshold of a new year shall we, like other businesses, pause and take stock of ourselves to see where we have arrived in relation to the goal which we set for ourselves at our annual meetings?

Is there yet a county or a State Auxiliary that is not working under the direction of an advisory council or counselor of doctors appointed by its medical society? A questionnaire sent last summer to our thirty-seven constituent state units to ascertain if they had advisory councils appointed by their medical associations brought replies from thirty and revealed that twenty-eight of those did have an advisory council. One of our goals for this year is an advisory council or counselor for each of our county and State Auxiliaries. Where does your own Auxiliary stand with relation to this goal? It is hoped that each State president reporting at New Orleans will be able to say that not only her State Auxiliary but that each of its constitutent county units has an advisory council or counselor.

Have you as a county or State group set a goal for membership? Has your Auxiliary some sort of membership file by which you have kept a complete record of members from the beginning of your organization and are you retaining as members all those who have ever belonged? If not, could you not begin this first month in the new year to re-enlist them? Our national files contain many cards of members which we have had to class as "delinquents" because we have failed to receive dues for them or reports on them. Some of these have moved to other States, others have passed into the Great Beyond, still others have just failed to pay dues. Could not each organized county that has not already done so, this year make an effort to re-enlist every eligible woman who has ever been a member, make a card file of its membership and report to the State office the names of those who have moved to another locality and to a chairman, which each State president is being asked to appoint for that purpose, the names of those who have passed on?

Last year Mrs. Hunsberger did much work to get our national membership file into order. The adoption of the present plan of treasurers' receipt blanks, now universally used by the Auxiliaries, I think, is helping to perfect our files, but until every county and State Auxiliary adopts the above suggested plan and reports on all the names ever sent in by them to the national office as members our files will be cluttered by cards which we must continue to class as "delinquents."

It seems to me that each county administration should feel that it had failed somehow in its duty if it did not make a sincere, persistent and tactful effort to hold in member-

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ship at least all those committed into its care by the former administration and unless its membership is already one hundred per cent of the wives of doctors belonging to the county medical society, it should attempt to make a definite, even though slight, gain.

The president of an Auxiliary in one of the sparsely settled western States, where great distances and mountainous country make frequent meetings impossible, wrote that she had received much inspirational material from the various national chairmen this year, but that as yet, her Auxiliary is only a social organization, whose primary purpose is to stimulate its members to attend annual meetings so that the attendance of the doctors themselves may be increased. This is a laudable goal. * * *

Some of the newly-organized Auxiliaries are attempting nothing more than to bring about unity and solidarity within the profession by means of social contacts between the families of doctors. My observations on my visits to Auxiliaries during this year leads me to believe that this function of the Auxiliary should not be underestimated. The medical societies are apparently more and more recognizing the forces both within and without the profession that are working counter to the best interests of the profession and the public and are feeling the need of a *unifying* force such as an Auxiliary may be when given sufficient encouragement and cooperation, and guidance by its medical society.

Recently an outstanding doctor in a county society which has no Auxiliary, objected to the organization of one because he said the Auxiliary is merely duplicating the work of other women's organizations. He gave as an example the various types of philanthropic work done by our units. This doctor had lost sight of two important factors in connection with the philanthropic projects of most of the Auxiliaries. First, the philanthropic work done by the Auxiliary usually is related closely to the work of the medical profession, for example: participation in Christmas seal sales of the tuberculosis societies; various types of work for hospitals, sanatoriums and preventoriums; scholarship loan funds for medical students and students of nursing; contributions to the Medical Benevolence Fund by the Pennsylvania Auxiliary; contributions to memorials established or approved by medical societies. Because of the humanitarian and almost universal appeal to women of philanthropic work it will serve as a bond to hold them together while they establish unity and good fellowship within their group and while some to whom the educational and legislative programs make a strong appeal work under the guidance of their advisors on these programs within their own and other women's groups. Has your Auxiliary a philanthropic goal for this year? Might it increase interest if you had such a goal?

The growing interest in the educational and public relations programs of the Auxiliaries this year has been most gratifying. That many State medical societies have prepared educational programs for their Auxiliaries and have endorsed the National Auxiliary study envelops for use in developing these programs is satisfying. In an increasing number of county Auxiliaries a few women are being discovered who are vitally interested in the educational programs and who are a real force in interpreting the ideals and work of the medical profession to other women's groups in which they work by influencing these groups in the choice of approved literature and speakers to be used on their health programs. One of our goals this year is to discover such women, to urge them to represent our groups in other women's organizations by accepting positions of leadership therein, and to back them up by our loyal support. Are there such women in your group working, or capable of working under supervision of your advisory council in other women's organizations?

The State Auxiliaries have made much progress this year in securing chairmen corresponding to the national chairmen. Our organizations cannot function properly until county Auxiliaries also have such chairmen who will receive program suggestions and materials from the State chairmen and who will report to the State chairmen on the progress of the county work. The function of the National Auxiliary is to stimulate interest in types of approved work possible to be done and to serve as a clearing house for information on the kinds of work being done successfully by the various Auxiliaries. It is obvious that little interest can be stimulated if there are not county and State chairmen corresponding to the national. How near to this goal is your Auxiliary?

During the year between annual meetings our Press and Publicity Committee reporting

to the State Journals and through the Bulletin of the A. M. A. is our clearing house for information and news. Has your State contributed its share of news to the State and national chairmen? * * *

Do all of us realize that the American Medical Association is publishing *Hygeia* for the layman, to meet his insistent demand for information concerning the functions and care of the human body, and that if this demand is not satisfied by *authentic* information he is more likely than not "to go floundering away from scientific medicine?" If any of you are doubtful as to the helpfulness of *Hygeia* for teachers, mothers, nurses or doctors write to Mrs. Rogers N. Herbert, 1509 Stratton Avenue, Nashville, Tenn., for a folder of "*Hygeia* talks," which will probably convince you. If you are not a reader of *Hygeia* write, "The Circulation Manager," 535 North Dearborn Street, Chicago, Ill., for a sample copy, read it and let it convince you of its value.

No woman who is promoting the distribution of *Hygeia* through schools or homes or other educational groups should consider herself a magazine solicitor, but instead she should feel that she is an important factor in a health education project, devised and promoted by the American Medical Association, for the good of both the profession and the public.

* * *

And now as I write comes through the mail the fulfillment of one of the Kentucky Auxiliary goals set at their annual meeting at Lexington in September which I attended—the first issue of their new "*Quarterly*," the first bulletin, I believe, to be undertaken by a State Auxiliary! Congratulations, Kentucky!

* * *

Mrs. Joseph Hume, of New Orleans, is the chairman of the next convention which is to be held next May 9th-13th in that interesting old city of the South, New Orleans. Our own President-Elect, Mrs. Walter Jackson Freeman, who so skillfully guided the Convention in Philadelphia, is also a member of the New Orlean's Convention Committee.

There we shall find both pleasure and inspiration. May I hope to meet you there, one and all! May we have the satisfaction of reporting that we have reached all goals set for the current year! There are yet three more working months in which to accomplish them.

And won't you all be considering the goals we should set for next year?

Faithfully yours,

(Mrs. Arthur B.) Anna F. McGlothlan.

Truth About Medicine

In addition to the articles enumerated in our letter of November 28th, the following have been accepted:

Ciba Co., Inc.
  Tablets Dial—Ciba, 0.03 Gm. (½ grain)
Clinadol Co., Inc.
  Clinadol Co.'s Cod Liver Oil Concentrate
Lederle Laboratories, Inc.
  Surgical Maggots—Lederle
Wm. S. Merrell Co.
  Fibrogen Local—Merrell
    Fibrogen Local—Merrell, 7 c.c. vials
G. D. Searle & Co.
  Gold Sodium Thiosulphate—Searle
    Ampules Gold Sodium Thiosulphate—Searle, 1 c.c.
    Ampules Gold Sodium Thiosulphate—Searle, 2 c.c.
    Ampules Gold Sodium Thiosulphate—Searle, 5 c.c.
E. R. Squibb & Sons
  Thromboplastin Local—Squibb
    Thromboplastin Local—Squibb, 20 c.c. vial.

The following article has been exempted and included with the List of Exempted Medicinal Articles (New and Non-official Remedies, 1931, p. 477):
  Lederle Laboratories, Inc.
    Fluid Extract of Ergot (Lederle)

PROPAGANDA FOR REFORM

Schellberg Apparatus for Colonic Therapy Not Acceptable.—The Council on Physical Therapy reports that the Schellberg apparatus for colonic therapy, manufactured by the Schellberg Manufacturing Company, New York, is stated to be a "new and improved medical apparatus for use in proctotherapy." In the letters patent the statements are made, among others, that "it is a further object of the invention to provide means which in its action will remove all obstructions and clean all pockets of the colon"; and also, "it is a still further object of the invention to construct an apparatus the use of which permits of a thorough cleansing of the several passages and is capable in use of insertion to a point where the cecum may be treated." The chief mechanical feature of the whole equipment is apparently the metal apparatus consisting of a by-pass valve which permits convenient entry into a rectal tube, with special tip, of the irrigating or other fluid; and also permits the exit from the rectal tube of the content within the sigmoid or colon. Acceptance of the recommendation and method having to do with the introduction of a rectal tube as far as the cecum, for irrigating or other purposes, more or less as a routine, could not, in the opinion of the Council, be justified without critical evidence of the necessity, safety and superior efficiency of such a measure. The firm has failed to furnish this evidence. In the descriptive matter accompanying the apparatus, sweeping and uncorroborated statements are made relating to the physiology of the colon. The Coun-

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cil on Physical Therapy declares the Schellberg Apparatus for Colonic Therapy not acceptable for inclusion in its list of accepted devices. (Jour A. M. A., November 7, 1931, p. 1385).

Listerine, An Example of Bottled Psychotherapy — The odor and taste of thymol with a little of this and that. The formula given on the carton "Thyme, eucalyptus, baptesia, gaultheris and mentha, of each one part, boric and benzoic acids, twenty-nine parts, ethyl alcohol, two hundred and fifty parts, water to make one thousand parts. Lambert Pharmacal Company" is merely "a formula." The A. M. A. Laboratory found that the following gives a solution practically identical (chemically and bacteriologically) with Listerine: Boric acid 23.4 Gm., benzoic 0.4 Gm., alcohol (94%) 280 0 c.c., menthol 0.375 Gm., thymol 0.75 Gm., eucalyptol 0.8 c.c., methyl salicylate 0.1 c c., baptesia (wild indigo) fluid extract N. F. 10.0 c.c., water to make 1000.0 c.c. What progressive physician would attempt to write such a poly-pharmaceutical prescription! (Jour. A. M. A, November 14, 1931, p. 1466).

The A. M. A. Chemical Laboratory.—In 1906 the Board of Trustees directed the creation of a chemical laboratory in the headquarters of the American Medical Association. The chief function of the Laboratory was and is to aid the Council on Pharmacy and Chemistry in its consideration of proprietary products. In 1906 deceit was rampant; false formulas and improbable chemical statements were not uncommon. Today there is much less of such gross deception. (Jour. A. M. A., November 14, 1931, p. 1470).

The Menace of Methyl Alcohol.—The dangers from the use of methyl alcohol have increased because the prohibition of alcoholic beverages has led to the substitution, in ignorance or unwittingly, of methyl alcohol. The danger has been increased by its use in automobiles as an anti-freezing agent in radiators of motor cars. In addition to the deliberate or the unsuspecting imbibition of the harmful methyl alcohol there are the dangers not only of inhalation of its vapors but also of its possible absorption through the skin. From studies on animals, it has been estimated that approximately one ounce of methyl alcohol repeatedly in contact with the human body, under conditions favorable to retention and evaporation, constitutes a threat to well being. It has also been estimated on the basis of experiments on monkeys, that the vapors of one ounce of methyl alcohol entering the human body constitute a threat to life even when the exposure is distributed over two or three days. (Jour. A. M. A., December 5, 1931, p. 1710.)

Liver Extract in Pernicious Anemia.—The treatment of pernicious anemia is not merely with liver or a potent substitute, but with enough liver or potent substitute for the given individual case. A falling red blood cell count is a clear-cut indication for the administration of much more potent material. Progressive cord changes are also a clear-cut indication for the administration of much more potent material, no matter whether the red blood cells are present in normal or in decreased numbers. If the patient has difficulty in absorbing the material when given orally, the parenteral administration may be of great advantage. The following liver extracts have been accepted for New and Nonofficial Remedies: Liver Extract No 343 (Lilly), Concentrated Liver Extract—Armour, Liver Extract—Fairchild, Liver Extract—Lederle, Marine Liver Extract—White, Solution Liver Extract—Parenteral—Lederle. (Jour. A. M. A., December 19, 1931, p. 1912).

The Geneva Convention of 1931.—The international conference on the limitation of the manufacture of narcotic drugs, held in Geneva, Switzerland, during the past summer, was guided not only by altruistic motives but also by practical objectives. The treaty resulting from the conference should be a beneficial influence in helping to solve the medicosocial problem of drug addiction, in simplifying the administration of laws and regulations governing the distribution and uses of these drugs, and in reducing the quantity of contraband arriving at American ports. The convention is designed to control further the international traffic and distribution of narcotic drugs and to limit the manufacture of all dangerous and potentially dangerous narcotic drugs to medicinal and scientific requirements. (Jour. A. M. A., December 12, 1931, p. 1801).

Book Announcements

A Doctor of the 1870's and 80's. By WILLIAM ALLEN PUSEY, A. M., M. D., LL. D. Sometime President of the American Medical Association and of the American Dermatological Association. 1932. Charles C. Thomas. Springfield, Illinois. Octavo of 153-xiii pages. Illustrated. Price, $3.00.

"Believing this accurate account of the life of a country doctor will be of permanent value, this book has been well printed on a fine quality of paper and beautifully designed and bound."

Source Material for the Social and Ceremonial Life of the Choctaw Indians. By JOHN R. SWANTON. Smithsonian Institution. Bureau of American Ethnology. Bulletin 103. United States Government Printing Office, Washington, D. C. 1931. Octavo of 282 pages. Cloth. For sale by the Superintendent of Documents, Washington, D. C. Price, 60 cents.

Courts and Doctors. By LLOYD PAUL STRYKER. New York. The Macmillan Company. 1932. Octavo of 236 pages. Cloth. Price, $2.00.

Varicose Veins. With Special Reference to the Injection Treatment. By H. O. McPHEETERS, M. D., F. A. C. S., Director of the Varicose Vein and Ulcer Clinic, Minneapolis General Hospital; Attending Physician, New Asbury, Fairview, and Northwestern Hospitals, Minneapolis, Minn. Third Revised and Enlarged Edition. Philadelphia. F. A. Davis Company. 1931. Octavo of 285 pages. Illustrated with 62 halftone and line engravings. Cloth. Price, $4.00.

Illustrated Primer on Fractures. Prepared by the Cooperative Committee on Fractures. Under Auspices of Section on Surgery, General and Abdominal and Section on Orthopedic Surgery. In Cooperation with Department of Scientific Exhibit of the American Medical Association. Second Edition. Revised and Reedited. American Medical Association, Chicago, Ill. 1931. Quarto of 63 pages. Cloth. Price, $1.00.

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Editorial

"Liver Deaths."*

A consideration of causes of death following operations on the gall-bladder and ducts must hold an interest for every surgeon and physician. It is, therefore, worth while to follow the discussion recently given this subject by Dr. Heyd, Professor of Surgery of the New York Post-Graduate Medical School and Hospital. In this communication, Heyd points out that E. M. Stanton had previously published an analysis of 500 fatalities in a combined series of approximately 10,000 gall-bladder operations. One is impressed with the importance of any procedures covering 10,000 observations that were signalized by 500 fatalities. So the causes of death in such a group must be held up to be in range of possibility. The causes of death in this collection of fatalities were variously given as peritonitis, pneumonia, embolism, cardiac failure, spontaneous perforation, sepsis, and renal failure, while "shock" and "hemorrhage" caused about 10 per cent of the deaths.

Heyd calls attention to a small group of fatal cases occurring in the New York Post-Graduate Hospital in which the cause of death, he feels, could not be placed in the above group. Heyd calls attention to three "distinctive types of death" which he designates "liver deaths." He describes the first type of death by the case of a woman, aged 37, who entered the hospital complaining of having "gas" after eating and of having occasional pain in the upper right quadrant. There had been one attack of pain which had required a hypodermic of morphine. Thirty-six hours after the operation the patient died. The second type of liver deaths was illustrated by operation upon and drainage of the common duct, whether for obstruction or infection. The third type is described as associated with common duct infection and pancreatitis.

Persons interested in this subject should read the discussion of this paper.

*J. A. M. A., December 19, 1931, page 1847.

Intravenous Use of Barbital Compounds.*

Every physician should read the authorized publication of the Council on Pharmacy and Chemistry on the intravenous administration of barbital compounds. Such a report as this brings to the busy physician a summary of known facts on the subject, places before him in more or less brief forms a survey of the general subject as to its effects, good or bad, and enables the physician to arrange in his own mind a more balanced judgment as to the merits and demerits of the problem discussed. Much has been done by authorized committees of organized medicine to bring to summary and conclusion opinions upon subjects that have been widely and frequently agitated by medical discussion and publications.

Within the last decade, the wide use of barbital preparations by the medical profession and the laity as well would seem to demand on the part of practitioners a more thorough and complete knowledge of the nature and effects of these preparations and so an oppor-

*J. A. M. A., Vol. 97, No. 25, page 1886.

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tunity presented, such as the one referred to above, should be embraced by physicians in active practice.

Intravenous use of barbitals demands knowledge of the direct effect upon the blood. The barbitals are insoluble organic acids which require large amounts of alkali for solution. The reports note that amytal, as illustrating the point, requires a degree of alkalinity—the equivalent of a buffer solution with P_H 9.5 or 9.8, or the reaction of nearly a ten-thousandth normal solution of sodium hydroxide which is approximately 900 times as alkaline as the blood.

One should note that experimentally the intravenous use of non-fatal though effective doses of sodium amytal advocated for anesthesia produces:

1. Immediate and sustained fall of blood pressure.
2. Acceleration of the heart and paralysis of the vagus nerve control (except possibly phenobarbital).
3. Cardiac depression.
4. Depression of gastric and intestinal motility.
5. Depression of smooth muscles of the intestine, uterus and blood vessels.
6. Reduction in the consumption power of skeletal muscles for sugar.
7. Hyperglycemia, with or without glycosuria.
8. Respiratory depression and irregularity.
9. Rapid fall of body temperature.
10. Prolonged narcosis.
11. Cerebral ischemia.
12. Depression of basal ganglions in the brain.
13. Decreased or increased urine.
14. Decreased excretion of phenolsulphon phthalein.
15. Decrease in diuresis of thyroxine.

Intravenous use of barbitals in obstetrics offers the following dangers:

a. Asphyxiation of the child and restlessness of the mother.
b. Undesirable general protoplasmic poisoning.
c. Post-operative depression is prolonged.
d. Pulmonary congestion and edema.
e. Difficulty in keeping respiratory passages free from accumulating mucus.
f. Delirium and restlessness.
g. Intake of fluids impaired and voiding omitted.
h. Special post-operative nursing care is indispensable.
i. Occasional toxic dermatitis occurs.
j. The method is contraindicated in aged and debilitated patients.
k. Sudden death may occur.

The disadvantages noted in this report of the intravenous use of barbitals are herewith appended:

a. Special preparation and adjustment of solution for injection of barbitals, especially if the sodium salts are more readily available, is inconvenient.
b. Solutions are not always clear.
c. Delays and annoyances accompany the method.
d. Intensive vigilance of the attendants is required.
e. Alkalinity of the solution is greater than that possible in the body and, therefore, irritation occurs.
f. There is unnecessary injury to the blood and the danger of colloidal shock.
g. There are unfavorable intravenous reflexes.
h. There is danger of pulmonary embolism.
i. Determination of the exact dosage is difficult.
j. There is danger of sudden and alarming fall of blood pressure.
k. There is marked respiratory depression and irregularity.
l. Reflex excitability is increased.
m. In operations on the upper air passages, poor relaxation of the masseters and laryngospasm occur.
n. Analgesia is seldom, if ever, attained.
o. The desired action is difficult to obtain.
p. Considerable individual variability exists.
q. In case of overdose, the drug cannot be retrieved.
r. Proposed antidotes are not dependable or satisfactory.
s. The duration of action is too brief for satisfactory operations.
t. Without the usual preanesthetic aids, such as morphine and scopolamine, and supplementary anesthesia with volatile anesthetics, barbitals cannot be relied on for use in operations.

u. Useful cooperation and sudden awakening of the patient operated on under local anesthesia are eliminated.

v. In surgery, the field of usefulness is narrow and limited.

Light Therapy.*

Our readers are urged to note the presentation on "The Present Status of Light Therapy" by Dr. Edgar Mayer, of Saranac Lake, N. Y., and authorized for publication by the Council on Physical Therapy of the American Medical Association. It can but be improvement of one's general information upon an illy understood branch of therapy to carefully peruse an article that, under the critical censorship of the A. M. A., endeavors to present a summary of accepted knowledge in physical therapy. To physicians and surgeons receiving scholastic and medical education in the early years of the century, the value of physical therapy was ever in considerable doubt. Such measures for combating illness and pathology were largely in the hands of persons not highly regarded as representing the best of medical and surgical schools of thought or practice. But latterly, under the influence of scientific advancement in this field, physical therapy has reached a rightful place in the estimation of the profession and has been given the special care of a committee of a national organization.

It is under such consideration that the article by Mayer on Light Therapy is presented and is commended to our readers as a means for informing themselves on this subject.

Mayer introduces his discussion by making a frank statement of the limitations of knowledge in this field and affirms that many claims made for the use of radiation are still based on empiric results. He affirms further that "perhaps when monochromatic sources of ultraviolet energy in sufficient intensity have become available to repeat experiments, more exact information will be obtained." The value of sunlight and artificial sources of light are given consideration in therapeutic application to disease.

After discussing more or less in detail some physical properties of light, Mayer calls attention to biologic effects of light. Red and infrared rays produce immediate hyperemia, if applied in sufficient intensity. Ultraviolet rays are rapidly absorbed by tissues at a depth of less than 1 mm., and produce marked chemical changes. Ultraviolet rays impair the growth of pathogenic and non-pathogenic bacteria as well as destroy them. Young cultures are more sensitive to this action than the old ones. Cholesterol, a substance found in large quantities in the skin, is activated chemically by ultraviolet radiation. Cholesterol under the effect of ultraviolet rays becomes endowed with antirachitic power. This may be ergosterol. Likewise, Mayer states, phytosterol of plants is activated. Food products, such as fats, oils, milk, vegetables, after exposure to ultraviolet rays, become antirachitic. The greenness is someway associated with ultraviolet rays and Vitamin A is associated with greenness of plants.

The increase of calcium and phosphorus content of the blood stream in rickets and tetany are influenced by ultraviolet rays. Antirachitic and calcium depositing agents, namely, Vitamin D and ultraviolet rays of sunlight and artificial sources, increase, says Mayer, the free acid of the gastric contents, resulting in holding calcium salts in solution and phosphorus absorption is increased as a consequence. Radiation effects, under proper application, an increase of red blood cells and reticulocytes and hemoglobin increase has been reported as having been gotten. Other important and favorable influences are noted on the quantity and nature of the blood.

The technic of exposure to the sun is discussed and should be interesting to doctors. Clinical results are expounded with conservatism and caution but with confidence that important advantages are to be gained in the proper use of light therapy in the treatment of human ills.

*J. A. M. A., Vol. 98, No. 3, page 221.

President's Message

Diphtheria.

It seems appropriate at this time to call to the attention of the members of our Society a condition that concerns all of us. When we look back to the time previous to the discovery of antitoxin and toxin-antitoxin, we are filled

with anguish and distress in contemplating the picture of the numberless deaths that occurred and the helpless efforts of our physicians of those days as they struggled, without any effective remedy, against the scourge of diphtheria. Some of us today still have vivid memories of the agonizing efforts of our parents as their children succumbed to this awful disease despite the futile and heartrending care of physicians and friends.

How different is the situation today! We have a remedy, which if used early and in large doses, is effective, and better still, we have a preventive. But we are not using these remedies to anything like the extent needed today.

Diphtheria, as we know, is found all over our State, in every town, village and community, and may occur at any season in the year. For effective treatment cases should be seen very early. In thinly settled communities it is often impossible to secure the services of a physician to administer antitoxin promptly, and this makes it all the more important and necessary to immunize all children.

It is hard to exaggerate the importance of protecting a child from diphtheria, just as it is important that we protect him from blindness in infancy. Every case of diphtheria is likely to cause infection in others and many are carriers for years. Doubtless before many years we will have compulsory immunization. However, it will take time and earnest and vigorous education of our people in preventive medicine before taking that step. This will not come except by and through the earnest efforts of the medical profession. It will come when the physicians of the State and nation awake to a full realization of their duty and responsibility. There are still those who, in ignorance, refuse to allow antitoxin to be used, and contend, in case of death, that antitoxin and not diphtheria was the cause.

We have by no means reached the goal in the treatment of infectious diseases until the remedy is within the reach of all, and until doctor and layman alike are educated to the full active belief in prevention as the chief remedy for the eradication of disease.

I am assuming that the members of the Society are as much concerned in the prevention of disease, as in the treatment and care of their patients. Many of you are doubtless familiar with the statistics—many others are not familiar with the conditions throughout the State. A few figures may help to arouse us to a true realization of the situation, and stir up the physicians all over the State to active participation in combating the onslaughts of this disease.

From 1926 to 1930, inclusive, there were 12,946 cases of diphtheria reported in Virginia, with 1,054 deaths in the same period. In the first eleven months of 1931, 3,905 cases were reported, and it is most probable that the December figures for 1931 will carry the total beyond that of 1923, which was 4,656 cases with 337 deaths.

Because of the marked increase of diphtheria within the State during the past few months, and the expressed concern of many citizens in having effective measures carried out for the control or eradication of this disease in future years, the Medical Society of Virginia, cooperating with the State Department of Health, should work out a combined plan whereby the resources of the State and local health agencies may be made available to aid the physicians in administering diphtheria immunizations to children of the State between the ages of six months and fifteen years.

It has been with a great deal of interest that I have discussed the outlines of a plan with Dr. Warren F. Draper, our State Health Commissioner, and it is our purpose to present this matter to the Councilors at the winter meeting to be held in the next few weeks; and to ask Dr. Draper to be present and assist us in adopting a wise and workable plan. The details of any plan that may be adopted or agreed on will be published in the next JOURNAL, and a copy sent by our Secretary to each local society in the State, with the hope that this proposal may result in action which will accomplish a sufficient number of diphtheria immunizations to materially affect the incidence of this disease during the next season, and that it may serve as a basis for the development of future successful cooperative enterprises with the physicians of the State.

I. C. HARRISON, M. D.,

President, Medical Society of Virginia.

Department of Clinical Education
OF THE MEDICAL SOCIETY OF VIRGINIA

A Small Field Well Tilled.

An investigation of the educational activities of component societies will be the basis of discussion in the annual meeting of the Department of Clinical Education to be held on January 21, too late for reporting until the next issue of the MEDICAL MONTHLY. Reports already received from almost half the secretaries indicate that continuing medical education is primarily the function of the comparatively few city and district societies. Of the county societies only a small number apparently have sufficient size and interest to attempt clinical and scientific meetings regularly; three of the leading county societies, those of Albemarle, Norfolk, and Warwick, are in fact if not in name urban groups.

Since in its present development post-graduate medical education in Virginia is limited in facilities, agencies, and resources, it should strive to be "a small field well tilled." The reporting officers generally agreed upon methods

SOCIETIES REPORTING EDUCATIONAL MEETINGS

Name of Society	*Interval of Meetings*	*Help Needed in Securing Speakers?*	*List of Available Speakers Wanted?*	*Help Useful in Sending Notices?*	*Can Meetings be Reported?*	*Can Attendance Lists be Furnished?*
City Societies:						
Fredericksburg	Mo.	Yes	Yes	Yes	Yes	Yes
Lynchburg and Campbell County	Mo.	Yes	Yes	No	Yes	Yes
Richmond Academy	Bi-wk.	Yes	Yes	No		No
Roanoke Academy	Mo.	Yes	Yes	No	Yes	Yes
(Not yet reported: Alexandria, Pittsylvania-Danville.)						
District Societies:						
Clinch Valley	Semi ann.	Yes	Yes	Yes	Yes	Yes
Mid-Tidewater		Yes	Yes	Yes	Yes	Yes
Post-Graduate	Bi-mo	Yes	Yes	Yes	Yes	Yes
Seaboard (alternately in Va. and N. C.)	Ann.				Yes	
Second District	5 a yr.	Probably	Yes	Yes	Yes	Yes
Southside	Quart.	Yes	Yes	Yes	Yes	Yes
Southwestern	Semi-ann.	Yes	Yes	Yes	Yes	Yes
Valley of Virginia	Semi-ann.	Yes	Yes	No	Yes	Yes
(Educationally inactive: Central District, Rappahannock Valley—reorganized as Fredericksburg Medical Society. Not yet reported: Northern Neck, Northern Virginia, Piedmont, South Piedmont.)						
County Societies:						
Albemarle	Mo., 9	Yes	Yes	No	Yes	Yes
Alleghany-Bath	Bi-mo.	Yes	Yes	Yes	Yes	
Arlington	Occasional	No	No			Probably
Fairfax	Quart.	Yes	Yes	No	Yes	Yes
Fauquier	Mo.	No	No	No	Often	Probably
James City	Quart.	Yes	Yes	Yes	Yes	Yes
Loudoun	Mo.	No	No	No	Yes	Yes
Mecklenburg	4 Mo.	Yes	Yes	Yes	Always	Yes
Norfolk	Wk.	Probably	Probably			Too many
Prince Edward	Mo.				No	Yes
Warwick	Semi-Mo.	Yes				
(Educationally inactive: Buckingham, Hanover, Lunenburg, Nansemond, Nelson, Russell, Tazewell. Not yet reported: Accomac, Amelia, Augusta, Bedford, Botetourt, Charlotte, Cumberland, Dickenson-Buchanan, Elizabeth City, Floyd, Halifax, Isle of Wight, Lee, Louisa, Northampton, Patrick-Henry, Powhatan, Princess Anne, Rockbridge, Rockingham, Scott, Southampton, Wise.)						

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by which the Department could help them to improve their education work: first, in obtaining speakers, partly by means of a list of competent speakers who will be available for their programs (preparation of such a list was immediately begun); second, by giving notice of meetings, especially by advance publication in the MEDICAL MONTHLY and in some cases by sending letters and cards of announcement not only to the local membership but also to the physicians in adjacent territory; and third, by follow-up reports in the MEDICAL MONTHLY with lists of physicians in attendance upon educational meetings. Needless to say, the Department of Clinical Education will put these practices into effect to the best of its ability and according to the wishes of each of the groups it serves.

One of the most interesting suggestions submitted referred to the educational importance of full reports to the family physicians in regard to patients admitted to the college hospitals, a suggestion endorsed by the Chairman of this Department as one that "is perfectly reasonable and should unquestionably be done." The problem of stimulating interest in society meetings was brought up in several reports—a problem which will most likely tax the zeal of interested officers for some time to come. Gratifying willingness to cooperate in educational programs was expressed or implied. In only two answers was the purpose of the Department of Clinical Education patently misunderstood: "Our members do not want an instructor to come into this territory to tell them on home ground how to do their work," and "Our Medical Society will not consider any educational program put on by the Medical Society of Virginia in their home towns as they believe that it lowers their standing in the district in which they work."

It cannot be too often emphasized that the Department of Clinical Education has no intention of trying to "put over" any program not desired by the members of a group. It exists only to further the educational activities of societies which need and request its assistance. It is not an outside body attempting to interfere in professional matters, but the arm of the Medical Society of Virginia created by it to reach out with definite encouragement to those of its members who are big enough in mind and heart to admit that they do not know it all and that they want to keep on learning. Fortunately for medical progress, they are the vast majority!

In the accompanying table is a summary of educational activities reported by Virginia societies to date.

GEORGE W. EUTSLER,
Executive Secretary.

Scheduled Meetings

PROGRAM OF THE NORFOLK COUNTY MEDICAL SOCIETY
FOR THE MONTH OF FEBRUARY, 1932

FEBRUARY 1ST. MONTHLY BUSINESS MEETING.

FEBRUARY 8TH. SURGICAL SECTION. Program to be provided by Sarah Leigh Clinic.

FEBRUARY 15TH. SECTION ON MEDICINE. Report of an Unusual Case of Bone Marrow Dysfunction—Dr. M. S. Fitchett.
Consideration of Radiation Therapy in Lympho-Blastoma—Dr. Clayton W. Eley.

FEBRUARY 22ND. SECTION ON OBSTETRICS. Relation of Pelvic Disease to Certain Systemic Conditions—Dr. John Cooke Hirst (*invited guest*), Philadelphia.

FEBRUARY 29TH. SECTION ON EYE, NOSE AND THROAT. Demonstration of the Binocular Ophthalmoscope, with Selected Pathological Eye Cases—Under direction of Dr. A. A. Burke.

POST-GRADUATE MEDICAL SOCIETY OF SOUTHERN VIRGINIA

The next meeting of the Post-Graduate Medical Society will be held at Lawrenceville, Va., Tuesday, February 23rd, at 2:30 P. M. The program will be as follows:

Common Chronic Infections of the Cervix and Vagina—Dr. E. L. Kendig, Victoria.

Indications for Contraception—Dr. W. M. Bowman, Petersburg.

Child Welfare—Member of the State Board of Health.

Special feature to be arranged by Dr. J. C. Flippin, University, Va., chairman of the Department of Clinical Education.

All members of the Medical Society of Virginia are invited to attend any scheduled meetings.

Proceedings of Societies

Roanoke Academy of Medicine.

The first regular meeting of the Academy was held at the Elk's Club in Roanoke, Va., on November 2nd, at which time scientific papers were read by Dr. J. M. Bishop, Roanoke, and Dr. J. B. Nicholls, Catawba Sanatorium. A report of the delegates to the last meeting of the State Society was read by Dr. T. J

Hughes. Dr. Rees Morgan was unanimously elected to membership.

Officers of the Society are Dr. Everett E. Watson, Salem, president; Dr. F. A. Farmer, and Dr. E. C. Ambler, both of Roanoke, vice-presidents; and Dr. Charles H. Peterson, Roanoke, secretary-treasurer.

The meeting on December 7th, at Shenandoah Hospital, was in charge of the Hospital Staff. The meeting was presided over by Dr. Frank Helvestine and interesting papers were presented by Dr. R. L. Mason, Dr. J. D. Willis, Dr. G. M. Maxwell, Dr. W. B. Huff, Dr. C. H. Peterson, Dr. T. J Hughes, and Dr. L. G. Richards. The program was followed by a social hour.

C. H. Peterson, *Secretary.*

James City-New Kent Medical Society.

There was a meeting of this Society held at Williamsburg, Va., January 7, 1932, at the Williamsburg Inn. Seven members were present. Dr. T. Brantley Henderson, who has recently moved to that city and is specializing in eye, ear, nose and throat work, was elected to membership. Dr. M. W. Crawford, of Lee Hall, Va., was present as an invited guest.

A motion was made and approved to have a representative of the Child Welfare Committee to be present at the next meeting. There was much discussion in regard to the vaccination and administration of toxin-antitoxin to the school children by the State Board of Health.

It was decided that the officers of the Society should hold office for two years so that Dr. A. M. Sneed, Toano, continues as president; Dr. J. R. Parker, Providence Forge as vice-president; and Dr. J. R. Tucker, Williamsburg, secretary-treasurer. It was also voted to hold the meetings every two months, the next meeting to be held at Toano, Va., the first Thursday in March.

J. R. Tucker, *Secretary.*

The Halifax County Medical Society,

At its meeting on December 17th, elected the following officers for the ensuing year: President, Dr. C. B. White, Halifax; vice-president, Dr. George A. Stover, South Boston, and secretary-treasurer, Dr. William C. Brann, South Boston.

The Loudoun County Medical Society

At a recent meeting elected Dr. M. H. Hiden, Warrenton, president, and Dr. John A. Gibson, Leesburg, secretary.

News Notes

The Tri-State Medical Association of the Carolinas and Virginia

Will hold its annual meeting in Raleigh, N. C., February 15th, 16th and 17th, with the president, Dr. Beverley R. Tucker, of Richmond, Va., presiding. The Sir Walter will be hotel headquarters. There will be early morning clinics and a number of interesting scientific papers by guests and members. It is announced that there are a number of new members. Other information may be received from Dr. J. M. Northington, secretary, Charlotte, N. C.

Medical College of Virginia News.

Ninety-one students are now enrolled in the medical section, Officers' Reserve Corps, at the Medical College of Virginia, Richmond. Since its establisment in 1922, with the first class graduating in 1926, 159 graduates in medicine have been commissioned first lieutenants in the medical section, Officers' Reserve Corps, United States Army.

The Phelps-Stokes Fund has made a gift of $200 toward the purchase of books for the new library of the St. Philip Hospital school of nursing.

Dr. Alan Gregg, director of medical sciences of the Rockefeller Foundation, was the guest of the Medical College of Virginia, Richmond, on January 5th.

Dr. William P. Stroud, professor of cardiology at the Pennsylvania Hospital, a teaching unit of the University of Pennsylvania, was a guest of the Medical College of Virginia, Richmond, on January 12th. He addressed the students of the third and fourth year classes and visited the various hospitals and clinics of the institution.

The Medical College of Virginia, Richmond, entertained the members of the General Assembly at a buffet luncheon at the college on

January 14th. The luncheon was given at Cabaniss Hall and was well attended.

Dr. Harvey B. Haag, assistant professor of pharmacology and physiology at the Medical College of Virginia, Richmond, has returned to the college after a six months' leave to study in Germany.

The number of patient visits to the crippled children's clinic sponsored by the Richmond Kiwanis Club at the Medical College of Virginia, Richmond, increased this year 598 over last year. The total number of such visits was 3,557 for the year ending December 31, 1931.

There were 4,213 patient visits to the outpatient department of the Medical College of Virginia, Richmond, for the month of December, 1931. The average number of patients per clinic day was 168, the maximum number 221, the minimum ninety-nine. The work of this department of the college has doubled within the last few years and is steadily increasing.

The regular scientific monthly meeting of the Faculty and Staff of the Medical College of Virginia will be held Thursday, February 18, 1932, at 8:15 P. M. in the auditorium of the Saint Philip Dormitory.

The program will be as follows:

1. "Utero-placental Apoplexy. A Case Report." Dr. George Holmes.
2. "Cretinism. A Case Report." Dr. Lee E. Sutton.
3. "Stab Wounds of the Ventricles. A Report of Two Cases, Noting the Significant Absence of Anginal Pain." Dr. William B. Porter.

News from University of Virginia, Department of Medicine.

At the meeting of the University of Virginia Medical Society on December 7th, Dr. Edwin McQuade gave a review of Recent Studies on the Common Cold, Dr. William A. Brumfield discussed The Epidemiology of Syphilis, and Dr. D. C. Smith presented a paper on Jugular Compression, A Possible Adjunct in the Treatment of Neuro-Syphilis.

The thousand dollar prize given each year by the American Association for the Advancement of Science "for a notable contribution to science" was awarded at New Orleans on January 1st to Dr. Carl Caskey Speidel, Professor of Anatomy, of the University of Virginia Medical School, for his studies of living nerve fibers.

Dr. C. C. Speidel presented his work on The Activities of Ameboid Growth Cones, Sheath Cells and Myelin Segments, as Revealed by Prolonged Observation of Individual Nerve Fibers in Living Frog Tadpoles before the George Washington University Medical Society on January 16th.

At the meeting of the University of Virginia Medical Society on January 18th the following program was presented: Observations on Maternal and Fetal Inter-relationships, by Dr. Corey; Recent Advances in Adrenal Physiology, by Dr. Britton; and The Clinical Use of Cortico-adrenal Extract, by Dr. Flippin.

News Notes from the Duke University School of Medicine and Duke Hospital.

On January 8th, Dr. George E. Bennett, Professor of Clinical Orthopedics at the Johns Hopkins University School of Medicine, lectured at the Duke Hospital on Recurrent Dislocations of the Shoulder Joint.

On January 15th, Dr. E. V. McCollum, of the Johns Hopkins University School of Hygiene, lectured before the North Carolina Section of the American Chemical Society, on The Chemical Background of the Science of Nutrition.

On January 23rd, Dr. Elliott P. Joslin, Clinical Professor of Medicine, Harvard Medical School, and of the New England Deaconess Hospital, in Boston, will lecture at the Duke Hospital on The Modern Treatment of Diabetes.

Dr. Oscar L. Hite

Announces the opening of his office in Professional Building, Richmond, Va., for the practice of gastro-enterology and allied subjects. Dr. Hite served an internship at Tucker Sanatorium, this city, following his graduation from the Medical College of Virginia in 1929. After that, he had a residency in medicine at Lenox Hill Hospital, New

York City, specializing in gastro-enterology, under Dr. Max Einhorn. For the past six months, he has been working with Dr. William Gerry Morgan, Washington, D. C.

Married.

Dr. John Breckinridge Woodville, Jr., Lansing, W. Va., and Miss Bobbie Lee Walters, Stony Point, Va., January 13th. Dr. Woodville is an alumnus of the Medical College of Virginia.

Dr. John Braxton McKee, Winchester, Va., and Miss Ruth Loraine DeBussey, Detroit, Mich., January 1st. Dr. McKee is an alumnus of the University of Virginia and recently located in Winchester after completing special work at the New York Post-Graduate Medical School and Hospital. He is a son of Dr. and Mrs. Thomas K. McKee, of Smyth County, Va.

Dr. James Alfred Gooch, and Miss Lelia Watkins Stacy, both of Richmond, Va., January 4th. Dr. Gooch graduated from Medical College of Virginia last June at which time he accepted an appointment to the State Hospital at Hazleton, Pa.

Joins Staff of Gill Memorial Hospital.

Dr. John A. Pilcher, Jr., of Roanoke, Va., formerly a house surgeon in the Eye Department of the Bellevue Hospital, has located at his home in Roanoke and is a member of the staff of the Gill Memorial Eye, Ear and Throat Hospital. Dr. Pilcher is a graduate of the Medical Department of the University of Virginia and served an internship in the Church Home and Infirmary, Baltimore, Md. Later, he did special work in bronchoscopy at the University of Pennsylvania under Dr. Chevalier Jackson.

Dr. Tiffany J. Williams,

Professor of obstetrics at the University of Virginia, has been appointed by Dr. I. C. Harrison, president, as a member of the Maternal Welfare Committee of the Medical Society of Virginia.

Staff Officers of Petersburg Hospital.

At the annual meeting of the Petersburg, Va., Hospital Staff, early in January, reports were made on the work of the hospital during the past year, and the retiring chairman, Dr. Wright Clarkson, discussed the work of the staff as a whole. Officers elected for the ensuing year are: Chairman, Dr. Herbert C. Jones; vice-chairman, Dr. E. W. Young; secretary, Dr. Leta J. White; vice-secretary, Dr. H. M. Snead; member of medical committee, Dr. George H. Reese.

Dr. Robert L. Payne,

Norfolk, Va., was the invited guest of the George Washington Medical Society, Washington, D. C., on the evening of January 16th, at which time he addressed the society on "The Advantages and Disadvantages of Surgery and Radium in the Treatment of Uterine Fibro-myomata."

Additional Clinics Opened by New York Polyclinic Medical School and Hospital.

In order to handle the increasing number of patients applying for treatment, it has been necessary to open additional clinics in Obstetrics and Allergy at the New York Polyclinic Medical School and Hospital. The clinic in Obstetrics is held three times a week and the Allergic clinic daily.

The Eastern Section Meeting of the American Laryngological, Rhinological and Otological Society was held at the New York Polyclinic Medical School and Hospital on January the 9th. Dr. Edmund Prince Fowler, of New York City, presided.

The Clinical Society of the Polyclinic held its stated meeting on the evening of February the 1st. At this time, a paper on Duodenitis illustrated by lantern slides was presented by Dr. Edward Leland Kellogg; one on Some Pathological Lesions in Sudden Natural Death by Dr. Thomas A. Gonzales (invited guest); and a paper on Esophageal Stenosis illustrated by motion pictures and lantern slides by Dr. Chevalier Jackson (invited guest). Discussion was opened on this last paper by Dr. Harlow Brooks, following which there was a general discussion. Supper was served upon completion of the scientific program.

Dr. R. W. Browne,

Who was formerly on duty with the U. S. Public Health Service at Norfolk, Va., has been transferred as Medical Officer in Charge from the Veterans' Administration Hospital, Walla Walla, Wash., to Veterans' Administra-

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tion Hospital, Bronx, New York. Dr. Browne has continued his membership in the Medical Society of Virginia since the time he was located here.

A Suggestion.

Why not take this and all other copies of the MONTHLY home, that your wife may see it? Each month the Woman's Auxiliary to the Medical Society of Virginia publishes an interesting Department in this journal which should be of interest to all the ladies in your family. Ask them to look for it and see what other doctors' wives, mothers and daughters are doing as members of the Auxiliaries. We hope you may develop the habit of taking your copy home.

Accidental Injuries of the Eye, the Chief Cause of Blindness.

According to Mr. Lewis H. Carris, Managing Director of the National Society for the Prevention of Blindness, in a recent address, there is reason to believe that accidental injuries of the eye now constitute the greatest single cause of blindness. An analysis of eye injuries during the last six years, as prepared by Dr. E. B. Patten, of the New York State Department of Labor, shows a more or less steady increase in the number of permanent total disability and permanent partial disability cases, from 2,247 in 1925 to 3,200 in 1930. A similar situation is revealed in Pennsylvania.

However, tremendous progress has been made toward eradication of ophthalmia neonatorum—long the leading cause of blindness; the incidence of eye diseases generally has been greatly reduced through preventive and curative medicine and surgery; and, of course, great strides have been made in the correction of visual defects, in the elimination of excessive eye fatigue, and in the promotion of general hygiene.

Dr. E. C. S. Taliaferro,

Of Norfolk, Va., attended the North Carolina, South Carolina, and Virginia Sectional Meeting of the American College of Surgeons, at Greensboro, N. C., on January 28th-29th, and made an address on "What Can We Do for Far-Advanced Carcinoma of the Cervix?"

Dr. W. M. Junkin,

Of the class of '25, Medical College of Virginia, now practicing in Elkins, W. Va., has been elected secretary-treasurer of the Barbour-Randolph-Tucker (W. Va.) Medical Society, for the present year.

New Staff Officers at Winchester Hospital.

At its annual meeting in January, Dr. Emmert C. Stuart was elected president of the physicians' staff of Winchester, Va., Memorial Hospital, succeeding Dr. Robert M. Glass, who served in that capacity last year. Dr. B. B. Dutton was elected vice-president, and Dr. J. E. Harris was re-elected secretary. All officers are of Winchester. All local physicians and surgeons are members of the staff and doctors of nearby Virginia and West Virginia counties are courtesy members.

Conquering Infant Mortality.

Of every 1,000 babies born alive in the United States sixty-four died in 1930 before completing the first year of life, according to provisional figures of the United States Census Bureau for the birth-registration area of the United States exclusive of Utah. This area now covers all of continental United States with the exception of South Dakota and Texas and includes approximately 95 per cent of the country's population. This American infant-death rate, while nearly twice that of New Zealand—which holds the world's record for a low infant mortality rate—is lower than in previous years. It represents a decrease of thirty-six per 1,000 since 1915, the year in which the birth-registration area was established in this country. At that time the rate for the ten states which kept accurate birth records was 100 per 1,000 live births. Similar improvements in the prevention of deaths among babies are indicated by official reports from many foreign countries, eight of which had lower infant mortality rates than the United States in 1928, the latest year in which figures for at least twenty-six countries were available.

Compared with previous centuries, the decrease in infant mortality rates all over the world is strikingly illustrated in a recently published book by Dr. Ernest Caulfield entitled "The Infant Welfare Movement in the Eighteenth Century." In it he calls attention to the impressive decrease in the deaths of young children in England. Official English reports of deaths for the twenty-year period following 1730 are quoted as indicating that 600 out of every 1,000 babies died before the

completion of their second year of life, and 750 died before the completion of their fifth year. For the twenty-year period around the beginning of the nineteenth century these deaths had been reduced so that of every 1,000 children born, 300 died before they reached the age of two years and 410 children before the age of five years.

Knighthood Conferred on Dr. Henry S. Wellcome.

In recognition of his generous support of medical research, Dr. Henry S. Wellcome, president of Burroughs Wellcome & Company, of London and Washington, was knighted by King George and his name included in the New Year's Honors List.

Dr. Wellcome is of American birth and is widely known in the United States. For years he has been recognized as a leader in research in medical science, and is now serving as the Honorary President of the American Pharmaceutical Association.

Dr. John R. Garrett,

Roanoke, Va., has just recovered from his second automobile accident in two years, both of which laid him up for two months, in addition to keeping him in the hospital for a time.

Dr. D. Lane Elder,

Hopewell, Va., has been elected district trustee of the Kiwanis Club of that place for the present year.

Schools for Negro Blind Children.

The U. S. Children's Bureau, Washington, D. C., announces that a list of 15 schools for Negro blind children is given in the September issue of the *Teachers Forum* for Instructors of Blind Children. Ten of the schools are under the same management as schools for white blind children; five are entirely separate institutions. These schools are situated in States containing large Negro populations.

The Richmond (Va.) Ophthalmological and Otolaryngological Society,

At its recent annual meeting, elected Dr. W. R. Weisiger president for the coming year. Dr.. T. E. Hughes was elected vice-president and Dr. R. W. Vaughan, secretary-treasurer. The society is composed of the eye, ear, nose and throat specialists of Richmond and meets monthly for scientific discussions.

Dr. Parker Better.

As we go to press, we learn that Dr. William H. Parker, of Richmond, Va., is very much better. He was taken to a local hospital on January 22nd as a result of injuries sustained in an automobile accident, when he lost control of his car which plunged down Libby Hill in this city, near Twenty-ninth Street.

Dr. George H. Snead,

Of Richmond, Va., sailed early in January for Vienna and Budapest *via* Hamburg. After several months of studying, Dr. Snead will tour the Continent before returning home.

Dr. William Price Bittinger,

Summerlee, W. Va., an alumnus of the Medical College of Virginia, was recently elected secretary-treasurer of the Fayette County (W. Va.) Medical Society for 1932.

Dr. Stuart McGuire,

Richmond, Va., has been appointed a member of the Richmond Public Library Board, to fill a vacancy caused by expiration of service.

Half Century of Service Celebrated by New York Post-Graduate Medical School and Hospital.

The anniversary dinner of the Faculty Association of the New York Post-Graduate Medical School and Hospital, held at the Hotel Biltmore on Saturday evening, January 30th, marked the rounding out of a half century of service by this pioneer institution of graduate medical education in the United States. The speakers were Ray Lyman Wilbur, Secretary of the Interior; Nicholas Murray Butler, President of Columbia University; and Dr. George H. Meeker, Dean of the Graduate School of Medicine, University of Pennsylvania.

Will Speak Before Norfolk County Medical Society.

Dr. John Cooke Hirst, of Philadelphia, will give an illustrated lecture before the Norfolk County Medical Society on February 22nd, at 8:00 P. M. His subject will be "The Relation of Certain Pelvic Abnormalities to Remote Complaints." As is usual at these scientific sessions, any member of the State Society will be welcome.

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Appointments of Physicians in the Medical Reserve Corps.

First Lieutenant Wyatt S. Beazley, Jr., Med. Res., and First Lieutenant Joseph A. Gallant, Med. Res., both of Richmond, Va., have been appointed to the 41st General Hospital, in the capacity of Medical Ward Officers.

Dr. James L. Hamner, Mannboro, Va., has also been appointed a First Lieutenant in the Medical Reserve.

Surgeon-General Hugh S. Cumming,

Of the U. S. Public Health Service, addressed the Richmond Chapter of the University of Virginia Alumni Association at its monthly meeting on January 6th. Dr. J. Shelton Horsley introduced General Cumming.

Hourly Nursing Service.

The Private Duty Nurses Club of Richmond, Va., announces the inauguration of an Hourly Nursing Service, in which its members are subject to call for service in all branches of the work that can be adequately performed in the home, at the following rates: $1.50 for first hour or less, and 50 cents for each additional hour or fraction thereof.

The Club realizes that due to the present economic situation there is a pressing need for a service of this kind in Richmond, which has heretofore been furnished only by the I. V. N. A. The adoption of a similar movement will render a distinct service to the people who do not care for or cannot afford a full time nurse. It will also help to solve the unemployment situation among the members of the Private Duty Nurses Club.

For information, dial 3-1656. (*Adv.*)

Location Wanted.

Middle aged, active doctor will appreciate information leading to good opening to practice medicine. Address "M.", care this journal. (*Adv.*)

Locum Tenens.

Doctor of ability desires to do relief work for one or more months. Address replies to No. 329, care this journal. (*Adv.*)

Obituary Record

Dr. James Benjamin Abbitt

Died at his home in Norfolk, Va., January 12th, from a heart attack, though he had been in bad health for several years. He was a native of Appomattox and was sixty years of age. Dr. Abbitt graduated from the Medical College of Virginia in 1901. At the time of his death, he was surgeon for the Norfolk and Western Railway and the Virginian Railroad. Dr. Abbitt had been a member of the Medical Society of Virginia for thirty years. His wife and two daughters survive him.

Dr. Lorrimer Fauntleroy James,

Well known physician of Richmond, Va., died December 28th, from an infection of the heart. He was fifty-eight years of age and graduated from the Medical College of Virginia in 1895. Dr. James practiced medicine in the counties of the Eastern Shore of Virginia and at Hopewell, Va., before returning to Richmond, his native city. He had been a member of the Medical Society of Virginia for twenty-five years. His wife survives him.

Dr. Giles Burneston Cook,

Front Royal, Va., died at a hospital in Washington, D. C., after a long illness. He was fifty-four years of age and a graduate in medicine from the George Washington University in 1903. Dr. Cook had been a member of the Medical Society of Virginia for some years. His wife survives him.

Dr. Roscoe C. Carnal,

Who was located and practiced in Virginia for several years, died in Pulaski, N. Y., January 13th, from injuries received when he fell from a second story window in his home, to which he had gone for air on account of feeling sick. He was forty-seven years of age and a graduate in medicine from the University of Maryland in 1905. After leaving Virginia he was engaged in institutional work in New York State until recently when he entered private practice. He had continued his membership in the Medical Society of Virginia since his residence in this State. His wife, neé Miss Bessie Blanton, of Ballsville, Va., and infant daughter survive him.

Dr. Charles Miller Hatcher,

Presidio, Texas, died December 27th. He was forty-three years of age and graduated from the Medical College of Virginia in the class of '17. Dr. Hatcher was formerly of Lynchburg, Va. His wife survives him.

Dr. George S. Watkins,

Oxford, N. C., died November 18th, at the age of fifty-three. He was a graduate of the former University College of Medicine, Richmond, Va., in 1900.